TECHNOLOGY DEPT.

NATIONAL PETROLEUM NEWS

August 21, 1940

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DETROIT

Total Removal of Sulfur Compounds Goal of Sweetening Technique

Gasoline sweetening processes, first concerned with odor improvement and now with anti-knock quality may become complete desulfurization processes .....Page R-298

• • •

High Temperature Creep Strength Checked for Low-Alloy Steels

Still-tube steel creep strength is improved by alloying with titanium or columbium, affected adversely by silicon and aluminum, tests show .....Page R-306

NEWS IN BRIEF

Bureau of Mines report shows progress by refining industry in adjusting crude runs and yields so as to reduce high inventories of gasoline. Page 18.

* * *

NADC may delay report on East Coast anti-trust case. Page 14.

* * *

Trial dates for both Madison cases decided, with Madison, Wis., as locale once again. Page 13.

* * *

Federal agency sets up buying corporation to finance aviation gasoline purchases. Page 13.

Sohio Corp. raises Illinois crudes 10c to $1.15 per bbl. as production continues to fall. Page 13.

* * *

Total of 31 companies enter nolo contendere pleas in West Coast anti-trust case. Page 13.

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Petroleum rail shippers hail reopening of ICC trainload hearings Oct. 9. Page 22.

* * *

Canadian Controller refuses request of co-op refiners for Turner Valley public hearing. Page 16.

REFINING TECHNOLOGY EDITION

MODERNIZE
YOUR PUMP HOUSE

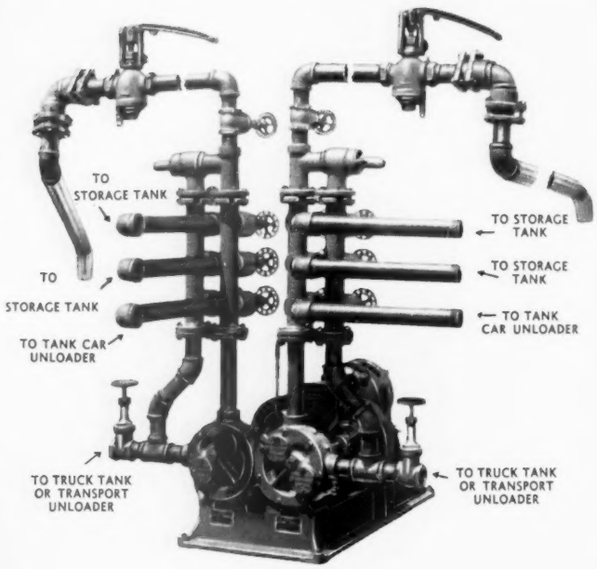
TO STORAGE TANK
TO STORAGE TANK
TO STORAGE TANK
TO STORAGE TANK
TO TANK CAR UNLOADER
TO TANK CAR UNLOADER
TO TRUCK TANK OR TRANSPORT UNLOADER
TO TRUCK TANK OR TRANSPORT UNLOADER

FIG. 343

WITH THE MORRISON CONCENTRATED CONTROL UNIT

. . . cast in a solid block it is easily installed and reduces pump house losses to a minimum through elimination of dozens of joints, unions, etc. Saves installation costs, provides ease of operation and offers greatest flexibility of flow control.

WRITE FOR COMPLETE DETAILS.

MORRISON BROS. COMPANY
OIL EQUIPMENT HEADQUARTERS
DUBUQUE, IOWA

NATIONAL PETROLEUM NEWS

August 21, 1940

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COMING MEETINGS . . .

AUGUST

Mississippi Oil Exposition, Yazoo City, Miss., Wed.-Thurs., Aug. 28-29.

SEPTEMBER

American Society of Mechanical Engineers, Spokane, Wash., Tues.-Thurs., Sept. 3-5.
American Chemical Society, Detroit, Mon.-Fri., Sept. 9-13.
Oil Trades Assn. of New York, Sports Day, Pelham Country Club, Pelham, N. Y., Tues., Sept. 17.
National Petroleum Assn., Hotel Traymore, Atlantic City, N. J., Wed.-Fri., Sept. 18-20.
SAE National Tractor Meeting, Schroeder Hotel, Milwaukee, Wis., Tues.-Wed., Sept. 24, 25.

OCTOBER

National Lubricating Grease Institute, Annual Convention Stevens Hotel, Chicago, Mon.-Tues., Sept. 30, Oct. 1.
North American Gasoline Tax Conference, Whitley Hotel, Montgomery, Ala., Thurs.-Sat., Oct. 3-5.
Western Petroleum Refiners Assn., Regional Meeting, Wichita, Kansas, Fri., Oct. 4.
American Gas Assn., Atlantic City, New Jersey, Mon.-Thurs., Oct. 7-10.
National Safety Congress & Exposition, Hotel Stevens, Chicago, Ill., Mon.-Fri., Oct. 7-11.
Indiana Independent Petroleum Assn., Fall Convention, Hotel Severin, Indianapolis, Wed.-Thurs., Oct. 9-10.
Automobile Manufacturers Assn., 1940 Autoshow, New York, Sat., Oct. 12.
SAE Annual Dinner, Hotel Commodore, New York, N. Y., Mon., Oct. 14.
National Stripper Well Assn., Dallas, Tex., Tues., Oct. 15.
Independent Petroleum Assn. of America, Annual Meeting, Dallas, Texas, Wed-Fri., Oct. 16-18.
American Institute of Mining and Metallurgical Engineers, Petroleum Division, Los Angeles, Oct. 17-18.
American Institute of Mining and Metallurgical Engineers, Petroleum Division, Tulsa, Okla., Thurs-Sat., Oct. 24-26.
National Dixie Distributors, Inc., Hot Springs, Ark., Monday, Oct. 21.
Western Petroleum Refiners Assn., Regional Meeting, Shreveport, La., Fri., Oct. 25.
Oil Trades Assn. of New York, Annual Banquet Waldorf-Astoria Hotel, New York, N. Y., Tues., Oct. 29.

NOVEMBER

California Natural Gasoline Assn., Los Angeles, Calif., Fri., Nov. 1.
Texas Mid-Continent Oil & Gas Assn., Fort Worth, Tex., Thurs.-Sat., Oct. 31-Nov. 2.
American Assn. of Petroleum Geologists, Los Angeles, Calif., Thurs.-Fri., Nov. 7-8.
American Petroleum Institute, 21st Annual Meeting, Stevens Hotel, Chicago, Ill., Mon.-Fri., Nov. 11-15.
Arkansas Oil Dealers Assn., Little Rock, Ark., Thurs., Nov. 14.
Arkansas Society for Testing Materials, Hotel Mayflower, Washington, D. C., Thurs., Nov. 14.

DECEMBER

Exposition of Chemical Industries, Grand Central Palace, New York, N. Y., Sun.-Fri., Dec. 1-6.
American Institute of Chemical Engineers, 33rd Annual Meeting, St. Charles Hotel, New Orleans, Mon.-Wed., Dec. 2-4.
American Institute of Chemical Engineers, New Orleans, La., Mon.-Fri., Dec. 2-6.

THIS WEEK WITH NPN . . .

CAR DEALERS

What are the factors that contributed to the 30% increase in income of car dealers from lubrication and accessory sales? Just how did they cash in? In this issue a survey points out how car dealers use merchandising and showmanship to increase servicing profits. Programs of car manufacturers and oil companies, showmanship of equipment, effective displays, careful follow-up and pre-selling car service all are used by car dealers in building this sales increase. See page 25.

POLICIES

What lies in back of company policies? Are they resultful from a strictly dollar and cents point of view? That's the question a large oil company station employe asked himself. From his limited viewpoint he concluded that many policies were not at all effective. Then, when he takes over the station, his opinions do a right-about-face. He finds the policies he once questioned are sound business-builders and bring him definite results in dollars and cents. You might want to pass around this article to your own employes—or better still, we'll be glad to quote on reprints in quantities. See page 24.

GILLETTE DEMANDS

In this issue NPN carries an interesting news item on the anti-trust suit. Senator Gillette in a letter to the Dept. of Justice demands an explanation for the Department's procrastination in filing the East Coast anti-trust suit. Anti-Trust Head Arnold replies to the effect that if study of suit by Defense Commission justifies modification, his department would modify along lines suggested by Commission.

FOLLOW-UP

What can Oil Management do to increase the effectiveness of station follow-up? What is the proper time for station operators to carry through on follow-ups? These are some of the important questions discussed in the article on Follow-Up in this issue, which gives the methods used by Oil Marketers as part of their follow-up plan. This article will be Reprint No. 5 in NPN's Summer Lubrication Campaign and prices are shown in an ad on page 4.

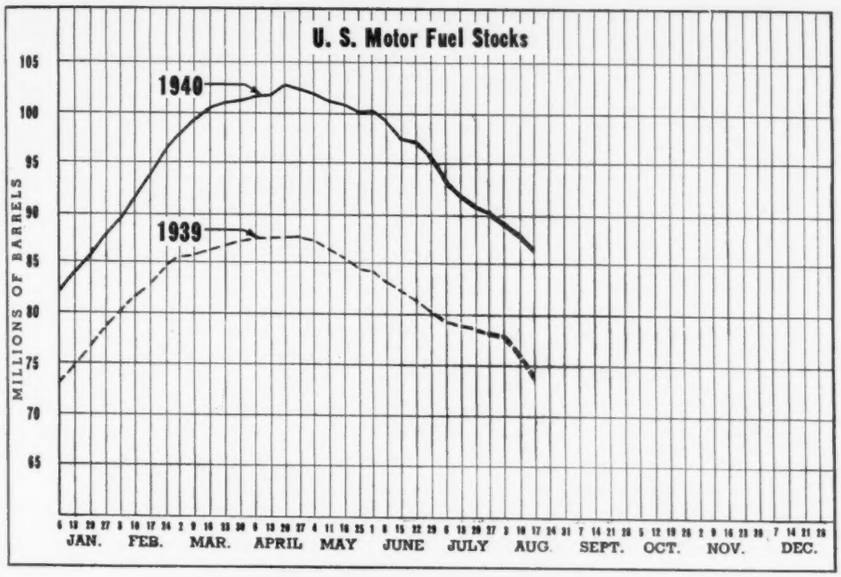
NEXT WEEK

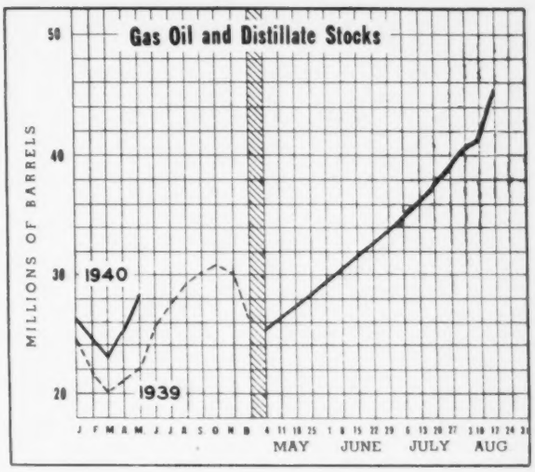
Learn by doing is the keynote of modern training schools for service station employes. Next week's NPN surveys the training school methods of a large oil company and shows how students are tutored in salesmanship and good housekeeping.

ADVERTISING PAGES REMOVED

NOW! ANOTHER BUTLER ENGINEERING TRIUMPH!

LATEST OIL INDUSTRY
· STATISTICS ·





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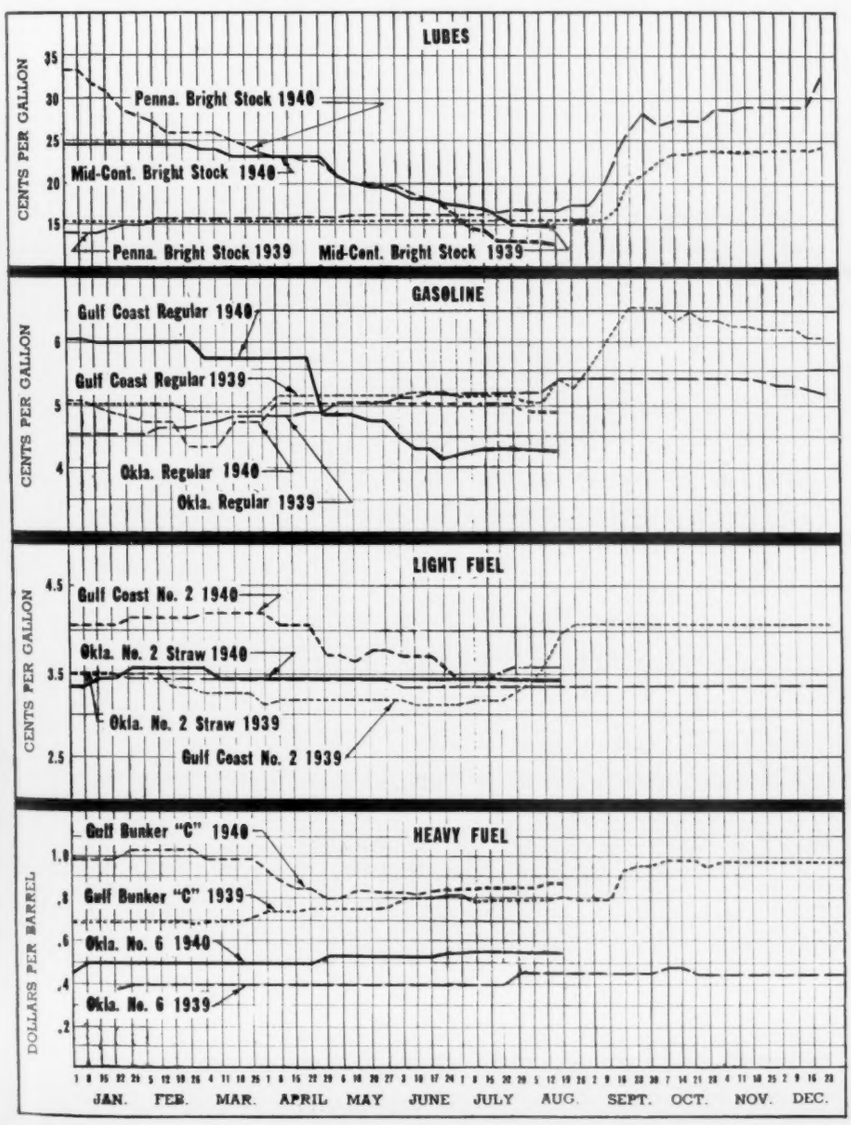
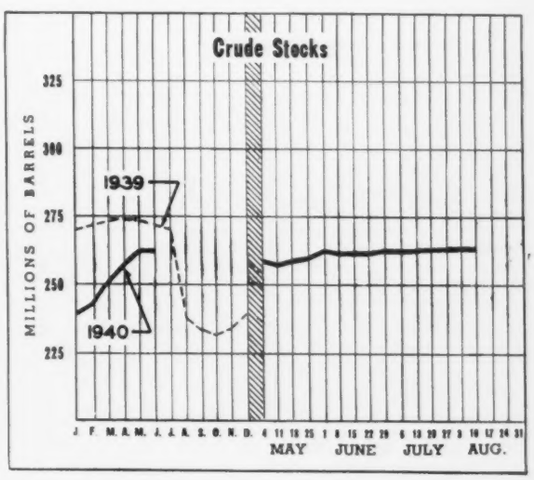
REFINERY TANK CAR PRICES





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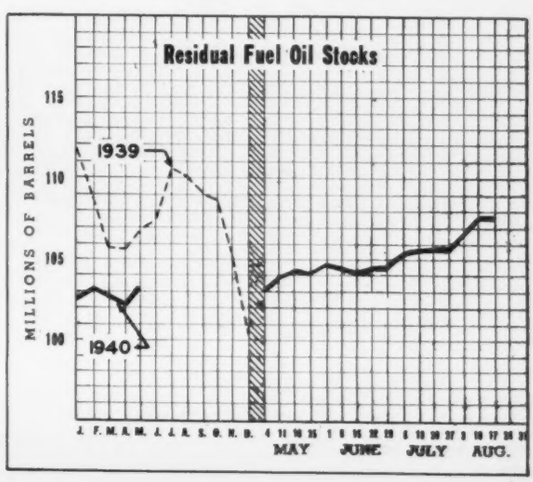

Are you buying—

at the right TIME?

. . at the right PRICE?

IF you were to place an order today for gasoline, or kerosine, or fuel oil, or lubricating oil . . . how sure would you be that you were buying at the *right price*, and at the *actual market*?

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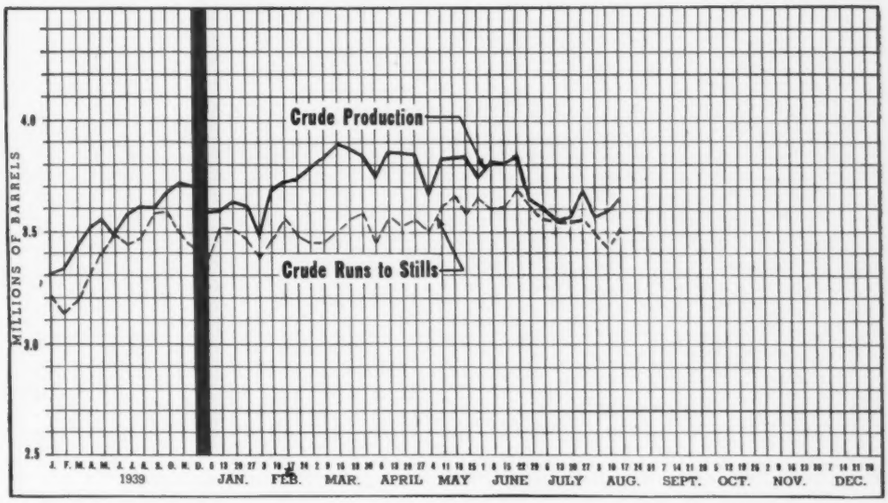
· STATISTICS ·

Crude Oil Production for the U. S.

(American Petroleum Institute figures)

	Week Ended Aug. 17 Barrels	Week Ended Aug. 10 Barrels
Oklahoma	392,250	381,800
Kansas	187,000	169,150
Nebraska	200	50
Texas	1,192,450	1,176,000
Louisiana	278,400	281,400
Arkansas	73,600	73,050
Mississippi	15,700	12,350
Illinois	391,350	395,050
Indiana	14,150	14,900
Eastern (Ill. and Ind. excluded)	90,300	89,550
Michigan	54,250	54,150
Wyoming	75,500	73,200
Montana	17,500	17,650
Colorado	3,500	3,600
New Mexico	100,000	101,600
California	632,600	631,800
Total U. S.	3,518,750	3,475,300
Crude Imports	117,290	115,850
Total New Supply	3,636,040	3,591,150

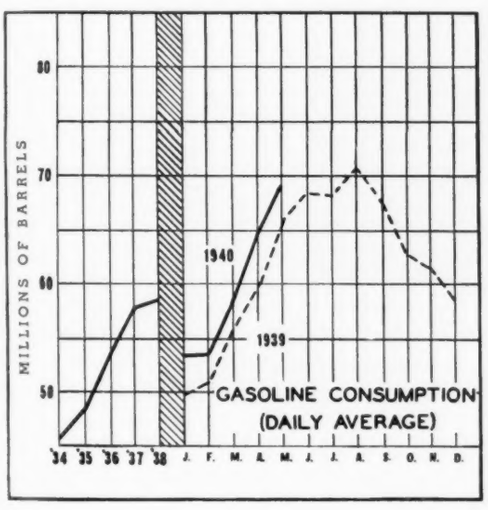


N.P.N. Gasoline Index

	Dealer T.W. Cents per Gal.	Tank Car Cents per Gal.
Aug. 19	8.87	5.35
Month ago	8.99	5.40
Year ago	9.68	5.83

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 9 wholesale markets for regular-grade gasoline.



Exports from the U. S. to Japan May, 1940

Crude Petroleum	952,000
Gasoline	32,000
Gas Oil & Distillate Fuel Oil	371,000
Fuel Oil	372,000

Exports from Calif. to Japan and Kwantung, June, 1940

Crude Petroleum	1,149,000
Gasoline	112,000
Lubricants	27,000
Gas Oil & Distillate Fuel Oil	597,000
Fuel Oil	240,000

Tanker Shipments From Pacific Coast Territory—June, 1940

(In barrels of 42 gallons)

From all custom dists.	Destination Foreign Atlantic	Foreign Pacific
Crude gaso. bearing	.....	1,465,225
Crude non-gaso. bearing	.....	131,954
Fuel oil	.....	834,064
Gas oil & Diesel oil	.....	761,822
Natural gasoline	.....	49,557
Gasoline	75,791	292,983
Kerosine	.....	150,558
Lubricants	1,199	38,687
Asphalt	.....	.....
Other Fin. Prod.	.....	.....
Unfinished oils	.....	.....
TOTALS	76,990	3,724,850

Weekly Changes in Crude Oil Stocks*

(Thousands of barrels)

Grade or origin	July 27	Aug. 3	Aug. 10	Change from Aug. 3
Pennsylvania Grade	4,686	4,582	4,666	+ 84
Other Appalachian	1,467	1,462	1,439	— 23
Lima-Michigan	1,449	1,442	1,458	+ 16
Illinois-Indiana	21,414	21,561	21,607	+ 46
Arkansas	3,433	3,455	3,344	— 111
Kansas	7,923	7,911	8,004	+ 193
Louisiana:	12,193	12,412	12,898	+ 486
Northern (inc. Mississippi)	4,262	4,459	4,647	+ 188
Gulf Coast	7,931	7,853	8,251	+ 298
New Mexico	6,509	6,755	7,017	+ 262
Oklahoma	65,676	66,014	66,247	+ 233
Texas:	82,478	83,142	81,220	—1,922
East Texas	19,374	19,699	19,707	+ 8
West Texas	19,242	18,681	18,227	— 454
Gulf Coast	19,653	20,062	19,269	— 793
Other Texas	24,209	24,700	24,017	— 683
Rocky Mountain	16,146	16,222	16,114	— 108
California	35,477	36,161	36,344	+ 183
Foreign	3,728	3,278	3,249	— 29
Total U. S. refinable	262,579	264,297	263,607	— 690
Heavy in California	12,962	13,053	13,119	+ 66

*As compiled by U. S. Bureau of Mines.

Distillate Oil Burners

	1940 June	1940 May	1939 June	1938 June	Total 6 months (January—June) 1940	1939	1938
New orders, less cancellations	40,576	38,122	35,235	14,020	162,239	119,889	68,857
Unfilled orders, end of month	20,865	21,718	11,279	7,815	.....	.....	.....
SHIPMENTS:							
Total	41,429	31,034	30,258	15,078	148,704	108,862	61,132
United States	41,280	30,783	30,219	15,054	148,077	108,607	60,443
Canada	147	244	28	2	614	213	620
Foreign	2	7	11	22	13	42	69
Stocks, end of month	69,053	61,646	63,180	59,169	.....	.....	.....

A. P. I. Weekly Refinery Report

(Figures in Thousands of Barrels of 42 Gallons Each)

Districts	Daily Average Crude to Stills Week Ended Aug. 17	Daily Average Crude to Stills Week Ended Aug. 10	Per Cent of Reporting Capacity Operated Week Ended Aug. 17	Per Cent of Reporting Capacity Operated Week Ended Aug. 10	a Gasoline Production Week Ended Aug. 17	a Gasoline Production Week Ended Aug. 10	Stocks Total Finished & Unfinished Motor Fuel (b) Week Ended Aug. 17	Stocks Total Finished & Unfinished Motor Fuel (b) Week Ended Aug. 10	Stocks of Gas Oil & Distillates At Refineries Week Ended Aug. 17	Stocks of Gas Oil & Distillates At Refineries Week Ended Aug. 10	Stocks of Gas Oil & Distillates At Terms. Trans. Pipelines Week Ended Aug. 17	Stocks of Gas Oil & Distillates At Terms. Trans. Pipelines Week Ended Aug. 10	Stocks of Residual Fuel Oil At Refineries Week Ended Aug. 17	Stocks of Residual Fuel Oil At Refineries Week Ended Aug. 10	Stocks of Residual Fuel Oil At Terms. Trans. Pipelines Week Ended Aug. 17	Stocks of Residual Fuel Oil At Terms. Trans. Pipelines Week Ended Aug. 10
East Coast	603	577	93.8	89.7	1,594	1,540	21,848	21,317	7,805	7,276	7,647	7,463	5,482	5,272	5,562	5,593
Appalachian	121	113	85.2	79.6	456	407	3,428	3,518	315	301	132	119	491	471	.....	.....
Ind., Ill., Ky.	579	525	86.4	78.4	2,249	2,187	14,576	14,930	3,348	3,262	1,760	1,651	3,115	3,085	314	266
Okla., Kans., Mo.	257	262	79.6	81.1	(c)938	(c)912	6,317	6,463	1,433	1,433	84	58	2,057	2,075	.....	.....
Inland Texas	119	119	71.3	71.3	526	495	1,669	1,684	352	351	.....	.....	1,463	1,444	.....	.....
Texas Gulf	766	756	83.8	82.7	2,293	2,222	11,664	13,106	5,743	5,425	1,017	935	7,100	6,949	308	283
La., Gulf	105	119	65.6	74.4	255	287	2,710	2,752	1,083	1,121	25	26	1,318	1,343	319	278
No. La., Ark.	48	49	92.3	94.2	138	132	485	491	278	265	10	15	507	520	.....	.....
Rocky Mt.	60	66	88.2	97.1	230	240	999	1,030	116	124	.....	.....	541	560	.....	.....
California	479	468	65.6	64.1	1,286	1,262	15,735	15,809	8,095	7,858	1,561	1,989	55,139	55,262	21,994	22,005
Total Reporting	3,137	3,054	81.1	78.9	9,565	9,684	79,431	81,100	28,568	27,456	12,636	12,256	77,253	76,581	28,497	28,425
U. S. Total (d)	3,510	3,435			11,324	11,005	86,441	88,115	29,533	28,416	13,326	12,961	79,258	78,551	28,677	28,610
U. S. Total 8-17-39 (d)	3,472				11,661		74,822		26,618		9,576		87,253		28,327	

(a) Includes straight-run, cracked and natural blended.
(b) Includes stocks at refineries, in bulk-terminals, pipe lines and in transit.
(c) 12% of reporting capacity in this district did not report gasoline production.
(d) Estimated, U. S. Bureau of Mines basis

John L. Dryer . . .

● From farmer to oil man epitomizes the career of John L. Dryer, a leading Oklahoma independent and president of Petroleum Service Bureau.

Mr. Dryer, who has been connected with the oil industry for 27 years, is president and owner of Dryer, Clark & Dryer, Oklahoma City marketing firm which handles its own trade-marked petroleum products.

Born on a farm near Lexington, Mo., Sept. 20, 1890, Mr. Dryer, at the age of 23, became affiliated with the Pierce Oil Corp., and remained with this organization until 1915. From 1915-18, he was with A. W. Lee Oil Co. In 1918 he joined the Crown Petroleum Co. of Oklahoma City, leaving that company to go with the Security Petroleum Co. of Oklahoma in 1921. In June 1926, he organized his own company.

When Mr. Dryer began selling his own products, he used his mother's picture as a trade mark for "Mother Penn" oil which he markets through his stations.

NATIONAL PETROLEUM NEWS

VOLUME 32 WEDNESDAY, AUGUST 21, 1940 NUMBER 34

Madison Again Oil Case Site With Dates Set

N. P. N. News Bureau

CHICAGO, Aug. 16.—Trial of the second Madison case (jobber contracts) will be held Nov. 18, and re-trial of the 17 remaining defendants of the first Madison case (tank car buying program) will be held Jan. 20, 1941, it was decided here today at a conference between government counsel and counsel for defendants with Federal Judge W. C. Lindley. Both trials will be held at Madison, Wis. with Judge Lindley presiding.

The indictment in the second case brings three charges of (1) fixing uniform jobber margins, (2) uniform provisions in jobber contracts and (3) uniform understandings and agreements in connection with jobber accounts. Most of the defendants in this case pleaded nolo contendere in 1938 and 1939. The trial Nov. 18 will be of the following corporate and individual defendants, according to H. C. Hale, clerk of the Madison court:

Gulf Refining Co., The Texas Co., Tide Water Associated Oil Co., Globe Oil and Refining Co. of Illinois, Kansas, and Oklahoma, National Refining Co. and Deep Rock Oil Corp.

Individual defendants in the second case are W. V. Hartmann, vice-president, Gulf Refining Co.; W. S. S. Rodgers, president, The Texas Corp.; H. W. Dodge, vice-president, the Texas Co. and S. B.Wright, Chicago Division manager for the Texas Co.; E. L. Shea, vice-president, Tide Water Associated Oil Co.; J. W. Warner also of Tide Water; and I. A. O'Shaughnessy, president of the Globe companies.

The retrial of the first case will involve 17 defendants granted new trials July 19, 1938 by Federal District Judge Patrick T. Stone at Madison.

Defendants who will be tried Jan. 20, 1941 are: Cities Service Oil Co., Barnsdall Refining Co., and Standard Oil Co. of Indiana, and the following individuals: E. B. Reeser president, Barnsdall Refining Co. I. A. O'Shaughnessy, president, Globe Oil & Refining Co. A. M. Hughes, sales manager, Phillips Petroleum Co.; Alexander Fraser, president, Shell Oil Co.; E. J. Bullock, former vice-president, Standard Oil Co. of Indiana, now retired; A. G. Maguire, former head of Wadhams Division of Socony-Vacuum Oil Co. Inc., now retired; Harry D. Fruehauff, and H. E. Brandli, Cities Service Co.; O. J. Tuttle, of former Empire Oil & Refining Co., now Cities Service; Harry J. Kennedy, vice-president, Continental Oil Co.; C. B. Watson, vice-president, Pure Oil Co.; J. W. Carnes, Sinclair Refining Co.; Noel Robinson, formerly with Tide Water Associated Oil Co., and J. W. Warner, also of Tide Water.

D. J. Won't Be Surprised At More 'Nolo' Pleas

N. P. N. News Bureau

WASHINGTON, Aug. 19.—Entering of further pleas of *nolo contendere* in the second Madison case (jobber contracts) before the proceeding comes to trial before Federal Judge Lindley in Madison, Nov. 18, would not be unexpected, Justice Department sources state.

Buying Unit Set Up By Federal Agency For Aviation 'Gas'

N. P. N. News Bureau

WASHINGTON, Aug. 20.—Federal Loan Administrator Jesse H. Jones has agreed to set up a new government corporation to finance the defense commission's program for buying 100-octane aviation gasoline for the Army and Navy, it was learned here today.

Plans for the aviation gasoline buying program, which were developed by Dr. R. E. Wilson, NDAC oil adviser, contemplate the ultimate purchase of approximately $50,000,000 worth of 100-octane airplane fuel.

Idea of the new corporation is to purchase the 100-octane gasoline and then resell it to the Army and Navy as needed. The corporation will not build its own tanks but will rent storage space from refiners.

The new gasoline buying corporation is being set up with $5,000,000 capital, under powers recently granted the Reconstruction Finance Corporation to finance the acquisition of strategic and critical war materials.

Anti-Trust Report Postponed by NDAC

N. P. N. News Bureau

WASHINGTON, Aug. 19.—It may take several months for the National Advisory Defense Commission to complete its study of the national defense aspects of the Justice Department's proposed Eastern Oil anti-trust suit divorcing transportation and marketing operations, NDAC sources state.

Leon Henderson, Defense commissioner for price stabilization, whose staff is making the study, said he had no comment to make on the time it would consume, but did say "it will be long enough to cover the subject."

Reaction of Senator Gillette, Iowa, was to state he had just written a letter to Attorney General Jackson urging the Justice Department to use "its own independent judgment" about filing the Eastern oil suit, should undue delay develop in connection with the Defense Commission's study of the case.

Justice Department sources, which a week ago were saying the odds were two-to-one the case would be filed within three weeks, said it would be well to wait and see what happens, although questioning whether the filing date would be deferred for several months. Assistant Attorney General Arnold had no comment to make.

Gillette said he was telling Jackson, in his letter, that he appreciated the need for extending the NDAC the courtesy of time for a study of the proposed suit, and that some modification of the divorcement remedy sought might be advisable, but was indicating he saw no reason for abandoning the suit. Text of Senator Gillette's letter to Mr. Jackson was not immediately available.

The Gillette letter to Jackson followed an interchange of correspondence between the Iowa senator and Mr. Arnold, in which Mr. Gillette first demanded to know why the oil divorcement suit had not been filed, and then was told by Mr. Arnold the matter had been referred to the Defense Commission for study.

Commissioner Henderson was represented by the NDAC publicity office as interested in the case from the standpoint of price stabilization. Also interested, it was said, are Commissioner Edward Stettinius' industrial materials division, from the viewpoint of raw materials production, and the army and navy.

Variously published reports in connection with the divorcement suit that the government is negotiating for construction of new pipelines were denied by the publicity office, which said the projects of special interest to the oil industry now being pushed by the Defense Commis-

31 California Firms Now In 'Nolo' Pleas

N. P. N. News Bureau

LOS ANGELES, Aug. 20.—Eight more California defendants have pleaded *nolo contendere* in the West Coast anti-trust case, and were fined sums ranging from $1000 to $4500 by Federal Judge Paul J. McCormick.

These companies and the amount fined are: Signal Oil & Refining Co., $4500; Gilmore Oil Co., $4500; Fair Practices Assn., $4500; Exeter Refining Co., $1500; Fletcher Oil Co., $1000; Norwalk Co., $1000; Eagle Oil & Refining Co., $1000; and Petrol Corp., $1000.

Defendants now pleading *nolo contendere* in West Coast case number 31. Government's charges alleged price-fixing in violation of the Sherman anti-trust act.

Sohio Advances Illinois Crude 10c Per Barrel

N. P. N. News Bureau

CLEVELAND, Aug. 20.—Sohio Corp. today announced that effective at 7 a.m. Aug. 21 it will raise its price of Illinois Basin, and Griffin (southern Illinois and Indiana) crudes 10c, to a new posting of $1.15 per bbl.

Sohio Corp., crude purchasing subsidiary of the Standard Oil Co. of Ohio, buys between 60,000 and 70,000 barrels of these crudes daily.

sion are the storage of 100-octane aviation gasoline and the making of synthetic rubber.

A formal announcement will be made shortly on synthetic rubber, most of which would be made from oil, the publicity office said. Subsequent inquiry at the office of Dr. R. E. Wilson, NDAC oil advisor brought the information that several conferences had been held with prospective synthetic rubber manufacturers.

Gillette's Letter to Arnold

"I am somewhat disturbed over the trend of events in connection with the alleged violations of anti-trust statutes by some of our oil companies as bearing on the course of legislation which is pending in the Congress in which I have a personal interest as one of the sponsors.

"You will recall that, with Senator Borah, I have introduced in the Senate two proposals requiring the divorcement of the business of marketing petroleum products from the production and distribution field for such products and, also, for the divorcement of pipeline activities and methods in connection with the producing oil companies.

"You will recall that some time early in the spring of this year I had a conversation with you with reference to the studies that have been made by your section of the Department of Justice in connection with this field, and you informed me at that time that the Department was preparing, under your supervision, to institute a number of suits for violations of existing statutes and requiring divestiture in some instances. As a result of our conversation, it seemed wise and mutually beneficial from the standpoint of legislative and also judicial activity to parallel action and conduct hearings on the proposed legislation coincidental with the judicial prosecutions.

"You requested me to delay hearings on the legislative proposals until such time as you were ready to proceed with the suits you were preparing to file. I recognized the wisdom of your request and acceded to it. I have delayed the hearings up to the present time.

"I learned indirectly that you are about to abandon the prosecutions contemplated. I am sure you will recognize the unfortunate position in which it places me and the pending legislation. I do not know what reasons impelled your decision to postpone the prosecutions referred to, or the filing of the suits. But from information which I have in my files and information which I am sure you have and have referred to in your talks with me, there is ample justification for immediately filing these suits for determination.

"The interests of the general public and, particularly, the consuming public have been so seriously jeopardized by the practices of some of these companies that I am confident the Department of Justice would be playing unfairly with the interests of the general public in failing to proceed at the present time.

"Many newspapermen have been besieging me for information as to the reasons why these suits have been postponed or dropped. I have carefully refrained from comment and carefully refrained from giving information, but I have reached a point where I do not believe that, in fairness to my public duty, I can continue to delay these matters. Unless you are able to give me controlling or satisfactory reasons to justify the neglect to conduct the prosecutions at this time, I shall probably feel impelled to reopen the hearings on the pending legislation, and I do not believe that I would be further justified in refusing to comment on what appears to be an unjustified attitude on the part of the Department of Justice in bringing to the Courts the long and carefully prepared facts which you have assembled.

"I am sure you will not consider this personal in any way, but will be fully aware of the difficulty of my position. I hope those responsible in any way for the delay will realize that the action is not compatible with the public interest."

Arnold Answers Gillette

"I have received your letter inquiring about the delay in starting the proceedings against the major oil companies which have been under preparation by the Antitrust Division for a number of months.

"As a matter of courtesy to the Defense Commission and information to this Department, the matter was referred for study as to possible effects on national defense. Their recommendations will be carefully considered with respect to modifying any of the relief sought in the oil suit, if, as a matter of fact, it appears that the interests of national defense are involved. This does not mean a waiver of the antitrust laws. We anticipate no conflict.

"We are convinced that the oil suit will, in a civil proceeding, settle various issues which until now have been the subject of numerous criminal cases all of which the Department has won."

Striking Commiss on Agents Present Demands Through AFL

N. P. N. News Bureau

CHICAGO, Aug. 20.—Striking Commission agents of Standard Oil Co. of Indiana's Milwaukee division, in the Cartage and Commission Employes Union, joined with the American Federation of Labor Aug. 15, and demands of agents are being made through A. F. of L. at a meeting in Janesville, Wis., today, according to Earl Munson, business agent of the union. The meeting today, Mr. Munson told NATIONAL PETROLEUM NEWS, is a continuation of a meeting held Aug. 19 also at Janesville, when, he said, the company demanded proof that the union show that 50% of its eligible membership are members of the A. F. of L.

Indiana Standard officials at Chicago, however, today flatly denied that there is a meeting today between company officials and the representatives of the striking agents, or that a meeting too place yesterday. The company stated, however, that there had been a telephone conversation with union officials, although failed to disclose the nature of the call.

Company officials and officers of the union met at the Milwaukee offices of the National Labor Relations Board for the purpose of negotiating differences on Aug. 14. At the time it was agreed that there would be further negotiations at the company's Milwaukee office Aug. 22.

Between the two negotiation meetings, however, the commission agents union, composed entirely of employes of Indiana Standard, became affiliated with the American Federation of Labor, and according to officials of Indiana Standard, the president and secretary of the union, accompanied by a representative of the A. F. of L. appeared at the Milwaukee offices of the company unheralded Aug. 17.

Difference of opinion regarding the extent of the walk-out of commission employes continues, with the company reporting that the majority of the Milwaukee division agents, who went on strike Aug. 7, were back at work. Munson, speaking for the union, however, emphatically denied that a majority of the commission agents were now at work.

The walk-out was called Aug. 7 as a result of a disagreement between the union and company officials dating back from Feb. 3, 1939 when the union demanded 10% increase in income for the commission agents in the Milwaukee division. The disagreement was brought to a head by a cut in commissions, in May, 1940, estimated at from 10% by the company and 25% by the union.

The union is now pressing demands made on Feb. 3, 1939 which asked that a new system of commissions be put into effect, paying 1c per gallon on white goods (gasoline, kerosine, etc.) delivered within the station town and 2c on all white goods delivered outside, with the company to guarantee additional compensation if the proposed rate of pay failed to give agents a 10% increase in income. The union asked that the increase be made retroactive to Feb. 3, 1939. At present rates of pay for commission agents of the Indiana Company are based on individual contracts with the different agents and vary with the local situation of the employe, the company said.

Panhandle Crude Posting Remains at 75c Bbl.

WICHITA FALLS, Tex., Aug. 20.—The 75c a bbl. price for all North Texas crude established July 16, purchased for its Wichita Falls refinery continued to be posted at the offices of Panhandle Refining Co. here today.

Officials reiterated statements made previously that the company was unable to pay higher prices for its crude. "And until we get an advance in Texas tank wagon prices for gasoline that will increase returns on the refined oil products we sell, there's no use talking about a hike in our crude price posting," the official said.

California Crude Storage Up As Foreign Shipments Halted

N. P. N. News Bureau

LOS ANGELES, Aug. 17.—Regardless of the legal situation and the intentions of the administration, all the practical effects of a crude oil embargo have existed on the Pacific Coast since Aug. 1. Suppliers appear to be unanimous in their decision to ship to the banned areas, on their own account, only kerosine, diesel oil and gas oil.

The seriousness of this development is shown by the change that has taken place in crude storage on the Pacific Coast since the end of July. Estimates prepared by the Oil Producers Agency, based on A.P.I. and U. S. Bureau of Mines reports, indicate that from Jan. 1 to July 27, 1940, crude oil was consistently withdrawn from storage, the average withdrawals in that period being 1400 bbls. daily.

From July 28 to Aug. 10, however, the trend has been reversed, with additions to storage averaging 75,900 bbls. daily. In other words, in the 10 days following Aug. 1, the accumulated stock reductions of crude, amounting to about 300,000 bbls. for the first 7 months of the year, have not only been wiped out but West Coast crude stocks have actually increased by about 800,000 bbls., as compared with Jan. 1, 1940.

According to the Agency report, exports of crude petroleum from Pacific Coast ports averaged 56,500 bbls. daily during the 6 weeks ended July 27, but in the week of Aug. 3 these exports fell to 31,400 bbls. daily, all of which was moved prior to Aug. 1.

For the week ended Aug. 10, only one cargo of crude was exported, making the average for the 7 days only 11,600 bbls. daily. In the past, export movements have fluctuated widely from week to week, chiefly through the coincidental arrival and departure of tankers, but only once in the last 2 years have crude exports fallen below 30,000 barrels daily in any one week, it is reported.

Socony Cuts Eastern Kerosine, Fuel Prices

N. P. N. News Bureau

NEW YORK, Aug. 19.—Socony-Vacuum Oil Co. Inc. today announced that effective Tuesday, Aug. 20, its prices on kerosine and Mobile-heat (No. 2 fuel oil) are being reduced 0.3c per gal. for all methods of delivery throughout New England and New York state with the exception of western New York state.

Canadian Firms Ask 'Gas' Price Advance

OTTAWA, Aug. 14.—Request of the oil companies in British Columbia for an increase in gasoline prices recently fixed by the government has been followed by the British Columbia Fuel and Petroleum Control Board ordering a new inquiry into the profit and loss position of oil companies in that province.

The companies justified the request for a price increase by alleging increased costs. Companies named in the order of the board for inquiry on earnings are: General Oil Co.; Hi-Way Oil Co.; Home Oil Distributors; Imperial Oil Co.; Shell Oil Co. of Canada; Signal Oil Co.; Standard Oil Co. of B. C., and Union Oil Co. of Canada.

'Subnormal' Gasoline Prices Advanced in Kansas-Missouri

N. P. N. News Bureau

CHICAGO, Aug. 19.—Standard Oil Co. of Indiana today announced that effective Aug. 21 it will advance its "sub-normal" tank wagon prices for Red Crown (Regular) gasoline to dealers and consumers 0.5c per gal., or to "normal" if price is less than 0.5c below "normal" throughout Kansas and Missouri, except in the Metropolitan St. Louis area.

The company stated that no change will be made in tank wagon prices of third or premium grades of gasoline.

East Coast Flood Hits Oil Companies In Charleston, S. C.

N. P. N. News Bureau
By Telephone

CLEVELAND, Aug. 20.—Oil companies in Charleston, S. C., were reported recovering from the recent East Coast hurricane and flood which damaged about $2,000,000 of property in a 150-mile area from south of Savannah, Ga., to north Georgetown, S. C.

T. Wilbur Thornhill, Charleston, president of the Charleston Oil Co., today estimated that oil companies in his city suffered about $5000 worth of damage.

Some fuel oil tanks were submerged and 10 or 15 service stations were "flooded out," Mr. Thornhill said. While the water got into several gasoline tanks and flooded out the gasoline, no fires resulted, partly due to the fact that a high wind dissipated the gasoline, it was reported.

For a time, Charleston streets resembled Venetian canals with from 4 to 5 feet of water running through them.

Dow Joins Asphalt Institute

NEW YORK, Aug. 19.—Allan W. Dow, formerly of the A. W. Dow, Inc., has joined the Asphalt Institute as consulting technologist, J. E. Pennybacker, managing director has announced.

Four Pure Oil Executives In Southeast Get Promotions

N. P. N. News Bureau

CHICAGO, Aug. 17.—Four executives of Pure Oil Co.'s marketing subsidiary companies in the Southeast, have been advanced, according to an announcement here this week.

Wiley L. Moore, Atlanta, was elected board chairman of the Wofford Oil Co. of Georgia, Pure Oil Co. of Tennessee and Pure Oil Co. of the Carolinas, Inc. Mr. Moore was president of the Wofford Co. since its founding.

George A. Beattie, Atlanta, former secretary-treasurer of Wofford, was elected to the presidency of the company to succeed Mr. Moore. A native of Atlanta, and a graduate of Georgia Tech University, Mr. Beattie joined Wofford in Birmingham in 1919, after serving in the army. He was transferred to the Atlanta offices in 1923.

Orville Y. Kirkpatrick, Charlotte, became president of Pure Oil Co. of the Carolinas, Inc. in the election, and will maintain executive offices in Charlotte. A native of Waynesville, N. C., Mr. Kirkpatrick joined Pure Oil about 10 years ago after long service in the U. S. Navy.

Ben E. Robertson, Nashville, was elected president of Pure Oil Co. of Tennessee and will probably open company offices at Nashville, according to reports from the parent company here.

Wiley L. Moore

George A. Beattie

Orville Y. Kirkpatrick

Benjamin E. Robertson

Canada Co-Op Says Controller Refused Public Hearing Request

REGINA, Sask., Aug. 19.—The request of the Consumers Co-Operative Refiners Assn. of Regina for a public hearing to review the Turner Valley crude situation (N. P. N. Aug. 7, page 24) has been refused by Canadian oil controller, George C. Cottrelle, according to the Co-op.

An editorial in the Co-op's organ, "The Saskatchewan Co-Operative Consumer" states that Controller Cottrelle in his letter refusing to grant the hearing wrote: "According to the terms of the Order-in-Council appointing me, I am in a position to get at the facts without having hearings."

The refinery management states that it then requested the controller to furnish figures showing the present distribution of Turner Valley Crude. The editorial quotes the following as a reply from Cottrelle:

Cottrelle's Statement

"I trust that you will believe that I am doing the best I can with a difficult problem, having regard to the demand and the shortage of supply of Turner Valley crude. The requirements of your co-operative have been carefully considered, having regard to the interests of all others concerned. Further, I do not think you will expect me, having regard to the duties and responsibilities of this office, to make explanations in detail of the things which I do."

The Canadian co-op refinery has admitted that it has been forced, because of the shortage in the Turner Valley field, to import Montana crude to allow its 1500-bbl. refinery here to operate at capacity.

The allotment of Turner Valley oil of the co-op for the week of July 15 was 400 bbls. per day. This, the co-op states, was increased to 900 bbls. daily for the week of July 22, dropping to 750 bbls. daily for the week beginning July 29 and continuing at that rate since.

Meanwhile, Hon. N. E. Tanner, Minister of Lands and Mines for Alberta Province, in which the Turner Valley field is located, in a statement said that a much fairer solution of the problem raised by the shortage of crude in this field would have been a pro rata distribution of all the available production among the refineries, large and small alike, instead of the action taken by Royalite Oil Co. in notifying Saskatchewan independent refiners that their requirement could not be met and they would have to look elsewhere for supplies.

Mr. Tanner said that if it then appears that it is necessary to curtail shipments to some refineries, then the prevailing factor should be purely geographical, that is to say that refineries beyond the economic fringe for receiving Turner Valley oil (defined by witness in the recent Alberta investigation to be Portage la Prairie, Manitoba), should be the first to be inconvenienced. Tanner further pointed out that if crude oil shipments to small refineries were to be curtailed the result would be to take the refined product market from the small refiner and throw it into the hands of the major refineries.

The Alberta Minister pointed out, however, that July refinery requirements of 31,133 bbls. daily was a new peak in the history of Turner Valley, and that during the year there had been times when the amount called for was less than one half of this demand.

Ban On Mexico Oil Shelved By House

N. P. N. News Bureau

WASHINGTON, Aug. 19. — The Senate-approved Sheppard bill extending the National Stolen Property Act to cover property confiscated without payment by foreign governments is dead, for the time being, at least.

Action this week of the House Judiciary Committee in tabling the measure has created a situation where it apparently can be revived only by pressure of major proportions.

Bill was tabled by the committee following receipt of a letter from Secretary of State Hull, who, among other things, said the legislation failed to distinguish between legally and illegally confiscated property, as he indicated the proposed statute would not be helpful in the furthering of the Latin-American foreign policy of the United States.

Committee a week ago completed hearings on the Sheppard bill which were high-lighted by discussions of the relationship of the legislation to the Mexican expropriated oil property situation and the importation of petroleum and its products from that country.

Canadian Station Ban For 'Orderly Marketing'

Special to N. P. N.

OTTAWA, Aug. 19.—No ban against private consumption of gasoline was seen this week in Oil Controller G. R. Cottrelle's order prohibiting erection of more gasoline and oil selling outlets, it was reported here. This order is to promote "orderly marketing," according to Hon. C. D. Howe, minister of munitions and supply.

It was thought, by some sources, that the order might be the forerunner of general curtailment of gasoline.

Canadian Minister Hails SEC Approval Of Oil Royalty Sale

Special to N.P.N.

OTTAWA, Aug. 19.—On learning that the United States Securities and Exchange Commission had approved the sale of oil royalties in the United States on certain properties in Alberta, Hon. N. E. Tanner, Minister of Lands and Mines for Alberta, said that his department "appreciates the friendly gesture to and confidence in Canada shown by the Securities and Exchange Commission."

"Certainly," the Alberta Minister continued, "Canada's view justifies this confidence. The Dominion has a long, long record of fair treatment to all who have invested their time, energy and money in her resources. The Department of Lands and Mines stands ready at all times to render all assistance in its power to those developing Alberta's oil resources."

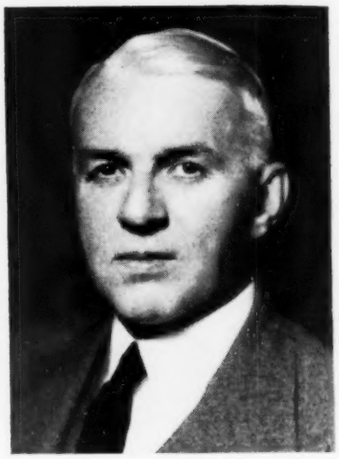
Mr. Tanner stated that from geological information now available he believed Alberta offered as safe an investment as any area on the North American continent.

Texas Trainees To Receive Pay

NEW YORK, Aug. 19.—Employes of The Texas Co. attending training camps of the National Guard, Naval Militia, Organized Reserve of the U. S. Naval Reserve and the U. S. Marine Corps Reserve will receive leaves of absence with pay for a period up to three months, officials of the company announced today.

If training lasts less than three months, full pay minus the military pay and added allowance for quarters and rations will be granted; if more than three months, leaves without pay will be forthcoming.

California Standard Elects J. H. Tuttle To Vice-Presidency



J. H. Tuttle

J. H. Tuttle has been elected a vice president of Standard Oil Co. of California succeeding H. D. Collier, who was recently elected president.

Mr. Tuttle entered the service of the company in the home office in San Francisco in July 1903. He became assistant general auditor in 1918 and general auditor in 1920. After serving as assistant secretary for one year, he was appointed secretary in 1922, and was elected to the board of directors in 1930.

J. H. MacGaregill, general manager of marketing, has been elected to fill the vacant directorship created by the death of W. H. Berg, former president. Mr. MacGaregill, who entered the services of the company as a warehouseman in 1903, has been successively service-station salesman, director of Standard Stations, Inc., and general manager of marketing for the parent company.

B. W. Letcher, general auditor and assistant secretary, has been elected secretary and comptroller of the company.

J. H. MacGaregill

THE EDITOR'S PAGE

Readers Comments and Opinions will be much Appreciated by—WARREN C. PLATT, Editor and Publisher, Penton Building, Cleveland, O.

From "toil and sweat" in a Hot Country Town

"It is from weakness that people reach for dictators and concentrated government power.

"Only the strong can be free.

"And only the productive can be strong."

So said Wendell Willkie Saturday out in a typical mid-western town as he accepted the Republican nomination for president of the United States.

He said many other things of stalwart American common sense, ideas that seemed naturally to spring from the heat, dust and sweat of a hundred thousand and more Americans who had driven and rode from farms and towns and cities for many hundreds of miles around.

To this milling sweating crowd he also said he could promise them that they would have to "toil and sweat" and labor still harder and pay heavier and heavier taxes. There was no "sugar coating," he assured them, to his campaign promises.

And the jostling, sweating crowd cheered. All that they ever had done was to work, and all that their brother ex-townsman had ever done was to work for what he has today.

Willkie, the small town boy, brought this whole country up short Saturday, to a realization that what this country is today is due to hard sweating work; that the miles of costly monumental buildings in Washington did not make this country; that it was not the fine theories, many imported from abroad, and expounded by men of soft hands as well as soft philosophies; that it was not the weasel words of congressional enactments and of court decrees; nor the dishing out of credits and money.

But, as you heard of the heat and dust of the enormous gathering in that small town, there isn't a man who ever lived and worked in such a town but who knew just what Willkie was talking about, but who felt the ache of his muscles, and the utter weariness at home-coming time, and, we venture, there isn't such a man but who said to himself and with a sigh of relief, "Well, we have still more work to do."

And by work he meant hard work, long hours, unpleasant work, not the book "work" of which we have been hearing so much of these more recent pinkish years of reform.

The automobile the past score years has been taking increasing millions of people out to these "small, dusty, sweaty" small country towns where America started, out where the "town council" was our earliest form of free representative government.

So perhaps the picture of the ex-country boy telling a hundred thousand of his home people that he will ask them to work still harder, that he has no easy formula for them out of their troubles—perhaps that picture, thanks to the automobile, may mean more to all Americans everywhere, of cities and towns, even perhaps of magnificent and austere Constitution Avenue in Washington, than we imagine right now.

The automobile does not disclose much of the pseudo American "baronial castles" of our eastern "gold coast," because those "castles" are generally well sheltered from public view by trees which also shelter their occupants from a sight of the rest of America. But the automobile certainly does show you the American "small town." It takes you right through it, dumps you off at its "Bon Ton cafes" and for many many millions of us it takes us back home where hard sweaty work was our regular fare.

Willkie's party at Elwood, Ind., took Americans back to simple beginnings and, let us hope, back to work.

From "Weakness . . . that reaches for Dictators"

Willkie's blunt statements promise to wake us all up to a realization of the extent to which business has been running to "concentrated government" for help instead of trying to work many of its problems out by "toil and sweat."

Oil men, big and little, have been guilty along with men in other industries and along with men in other occupations. Too many people have been trying to get another dollar by first getting "another law."

Big oil men have been to government—during the code days—for "price fixing" laws and small oil men have been to it for laws to break up or place heavier tax burdens on the big to soften the battle in the competitive fight.

Millions of Americans, in one way or another, have been driving the American government down the same road to ruin that Willkie points out France has followed. Willkie is for stopping the stampede and turning the tide of people fleeing to "concentrated government power" back to themselves, to their own jobs and their own lands. He would have them quit "reaching for dictators." He would have them cure their own "weakness" from which they "reach" by being more "productive" with hands and with minds, by harder study and harder "work" at our day-to-day problems of business and of living.

When we of the oil industry look back on many of our forays to Washington and to "concentrated government," many, at least, should be able to see the futility of the appeal; that it only admitted "weakness"; that not enough "toiling and sweating" had been done on the problem back home; that in fact we had "reached for dictators" from "weakness" that was due to our ignorance of all the facts of our own affairs.

Most of the oil industry went to Washington to get freedom from competition, if the truth be admitted. The pilgrims wanted the business "frozen" at prices which would give all good profits, whether all were fit to earn good profits or not.

As Wendell Willkie put it amid the dust and heat of Elwood, we had adopted the "doctrine of division" we sought "to divide among ourselves that which we already have"; we did not "seek risk," we "sought safety." Ultimately had these hopes prevailed, we would either have been operating under the "philosophy of distributed scarcity" or we would have been a cartel and a monopoly taking orders even as to our daily comings and goings from a "concentrated government." We would have cast aside our own freedom as we turned from our own "weakness" to a "dictator."

Mankind learns rather slowly and often quite painfully. The high point of our belief in the "know-all and do-all" of government was when so many rushed to the altar at Washington in 1933. The disillusionment in all this has been coming to first one and then another since then, not just in oil but in all businesses. But others are still going to the altar, many now unquestionably, not all with the best of intentions in their hearts which are filled chiefly with a desire to "get it while the getting is still good."

Today Mr. Willkie invites all to pause around him while he drives home the lessons to be learned from our acts of recent years, that if we are to have a competitive system, a system of personal freedom and personal liberties, we must make such a system work by our own common sense and hard work with due regard to the other man's rights, because his rights are our rights.

"In Europe those rights . . . which your ancestors fought for, and which you still enjoy, are virtually extinct," warned Mr. Willkie.

"You will have to be hard of muscle, clear of head, brave of heart" enjoined this man who is calling all of us "from weakness that . . . reaches for dictators."

September Gasoline Demand Up 7% Over September, 1939

N. P. N. News Bureau

WASHINGTON, Aug. 20.—Domestic demand for motor fuel in September will total 52,900,000 bbls., or 7% above the demand for September, 1939, Bureau of Mines forecasts today.

Real progress has been made by the refining branch of the industry over the past month in adjusting crude runs and gasoline and distillate yields so as to reduce the still abnormally high inventories of gasoline while proceeding with a satisfactory seasonal build-up in distillate stocks, Bureau declared.

September should be marked by a return to normal refinery shipments of motor fuel, Bureau stated, saying July and August should prove ample to take up the slack caused by the heavy buying which occurred in late June in anticipation of the 0.5c Federal tax increase.

Aviation 'Gas' Ban

Export ban on aviation gasoline may result in the additional curtailment of foreign shipments to the extent of several hundred thousand barrels monthly, but on the other hand, the June total for motor fuel exports of 2,581,000 bbls. was surprisingly high, Bureau said.

Forecast by principal exporters of motor fuel indicate the volume this September will be slightly less than 40% of last year. Total exports for September have been placed at 1,600,000 bbls. compared with 1,900,000 for August.

Domestic daily average supply of domestic crude oil estimated by the Bureau to meet the market demand in September is 3,624,300 bbls. This is 33,400 bbls. (1%) below the estimated demand for August and 104,100 bbls. lower than the actual demand for September, 1939.

Refinery Activity

Rapid decline in crude oil demand over the past month reflects chiefly the curtailment of refinery activity, although exports, fuel and losses appear to have been much lower than expected, Bureau explained.

Bureau predicts a reduction of 4,000,000 bbls. in stocks of finished and unfinished gasoline in September compared with 6,400,000 bbls. for August. Stocks totaled 93,569,000 bbls. on June 30.

September Benzol production and direct sales of natural gasoline are estimated at 1,200,000 bbls., the same as August.

Bureau estimates refinery production for September, distributed among various refining districts, as follows:

(Thousands of barrels)

East Coast	6,720
Appalachian	1,820
Indiana-Illinois	10,310
Oklahoma	3,050
Kansas	2,740
Inland Texas	3,510
Gulf Texas	11,620
Gulf Louisiana	1,390
Inland Louisiana	860
Rocky Mountain	1,350
California	5,930

Daily estimated average crude demand forecast by states for September follows:

(Thousands of barrels)

Texas	1,320,300
California	593,000
Illinois	430,000
Oklahoma	397,000
Louisiana	274,700
Kansas	170,000
New Mexico	105,300
Wyoming	75,300
Arkansas	69,700
Michigan	55,700
Pennsylvania	47,600
Montana	17,700
New York	13,700
Kentucky	13,300
Mississippi	9,700
Indiana	9,300
West Virginia	9,000
Ohio	8,300
Colorado	4,000
TOTAL	3,624,300

Illinois Crude Advanced 10c By Texas Company

TULSA, Aug. 20. — The Texas Co. today announced that effective Aug. 21, it would advance its posted price for Illinois Basin crude 10c to $1.15 per bbl. As a rule, Texas Co. is not a large purchaser of Illinois crude.

Ohio 'Gas' Consumption Up

COLUMBUS, Aug. 15.—Taxable gasoline consumption in Ohio in June was 127,342,563 gals., increase of 9,344,043 gals. or 7.91% over June, 1939, Ohio Petroleum Marketers Assn. reports. Ohio consumption in first 6 months of 1940 was 7.274% above same 1939 period.

'Gas' Stocks Drop 1,674,000 Barrels

N. P. N. News Bureau

NEW YORK, Aug. 20.—Stocks of finished and unfinished gasoline in U. S. fell 1,674,000 bbls. to 86,441,000 bbls., while gasoline production increased 319,000 bbls. to 11,324,000 bbls. in week ended Aug. 17, according to report of refining operations of American Petroleum Institute today. Decrease of 1,442,000 bbls. to 11,664,000 bbls. at Texas Gulf accounted for nearly all of the total drop.

Stocks of residual and distillate fuel oils were virtually unchanged over previous week, the A.P.I. report showed.

Petroleum, National Defense To Be Studied By Oil Compact

OKLAHOMA CITY, Aug. 20.—Interested in what may be expected of the country's oil producing states in the interests of National Defense, the Interstate Oil Compact Commission at its Aug. 23 meeting here is expected to delve into the subject of preparedness.

Dr. R. E. Wilson of New York City, oil advisor to the National Defense Advisory Committee, has prepared a written statement on petroleum and national defense to be read at the Commission meeting. Dr. Wilson will be unable to present the paper in person.

William R. Boyd, Jr., of New York City, executive vice-president of the American Petroleum Institute will also speak on the subject of oil and national defense.

Statistical position of the oil industry and demand forecasts by the Bureau of Mines will be discussed by George R. Hopkins, acting chief of the Petroleum Economics Division of the Bureau of Mines. Fred Van Covern, statistical director of the American Petroleum Institute and H. B. Fell, Executive Vice-President of the Independent Petroleum Assn. of America will also discuss the industry's statistical position.

Another chapter will be added to the history of Illinois oil fields by Dr. A. H. Bell, Illinois state geologist, who will speak on developments and operations in Illinois.

A report from the proration practices committee is expected at this meeting.

Danciger Plant Shut Down To 'Cut In' New Units

TULSA, Aug. 19.—The Pampa, Texas, refinery of Danciger Oil & Refineries, Inc. was shutdown this week to "cut in" the revamped cracking unit and a new polymerization plant. Test runs will begin within a few days, it was said.

The revamped refinery will have Dubbs cracking capacity of 3000 bbls. daily. The Universal Oil Products Co. catalytic polymerization unit will have capacity for about 620,000 cu. ft. of gas daily.

License agreement with U. O. P. also covers cracking operations at Danciger's Longview, East Texas plant. This refinery has not been in operation for some time.

Louisiana's 'Hot Oil' Investigation Commences Aug. 22 Before Grand Jury

NEW ORLEANS, Aug. 19.—Subpoenaed to appear before a county grand jury Aug. 22 are former Louisiana Governor Richard W. Leche, New Orleans Hotelman Seymour Weiss and two oil men—A. C. Glassell of Shreveport and F. W. Burford.

The grand jury investigation is believed to be an outgrowth of recent filings in state court here of bills of information charging Leche and Weiss with accepting bribes from Glassell and Burford for exercising influence over the Louisiana Conservation Commission for the purpose of running "hot oil" from Louisiana's Rodessa field.

These bills of information were based, it was said, on an indictment returned by federal grand jury a year ago charging conspiracy on part of Leche, Weiss and Burford to violate the Connally law, which prohibits interstate shipment of petroleum produced in excess of state allowables.

Unsuccessful attempts were made at that time to bring Burford to Louisiana to stand trial on these federal charges. The federal judge of the district where Burford resides, however, refused to sign extradition papers and the charges were never followed up.

Canadian Legation Denies 'Import Ban'

N. P. N. News Bureau

WASHINGTON, Aug. 20.—Canadian legation today declared there is no basis for published reports that Canada is considering a ban on imports of United States oil to conserve currency.

Reports were greeted by informed sources here with laughter and exclamations of "utterly fantastic" and "far-fetched". Pointing out that a ban on a critical material like oil is the last thing a country at war will do, the sources asked the question, "Where would Canada get oil, if imports from the United States were stopped?"

OIL TAX NEWS

No Gasoline Tax On 'Lost' Fuel

N. P. N. News Bureau

NEW YORK, Aug. 20.—The Connecticut gasoline tax of 3c per gal. applies only to gasoline sold or used in the state, and does not apply to gasoline lost through evaporation, spillage or shrinkage, according to a ruling of Superior Court Judge John H. King, in the test case brought by the state against the Fair-Chester Oil Co. of Port Chester, New York.

Fair-Chester, which maintains a large bulk plant in Port Chester, but does over 40% of its business in Connecticut, claimed that much of the gasoline on which it had paid taxes should have been exempt because of loss due to evaporation and spillage.

Judge King ruled that no tax shall be levied on shrinkage, providing the distributor can prove that shrinkage did occur. Granting exemption to Fair-Chester for a large part of the gasoline taxes, the court referred to an earlier ruling by the Connecticut attorney general that no tax could be placed on gasoline stored within the state and lost during the floods of 1936.

Curb On Car Taxes Cited As Ohio Need

CLEVELAND, Aug. 19.—In calling attention "to the need for curbing the mounting automotive tax revenues" in Ohio, John L. Marsh, executive secretary of the Petroleum Industry Committee of Ohio, this week said that automobile and truck owners in this state paid taxes in 1939 amounting to more than double the total amount collected by Ohio from all tax sources in 1922, or any previous year.

Mr. Marsh continued:

"In 1939 the motorists and truck owners in Ohio paid $79,091,000 to the state in gasoline taxes and registration fees, according to figures released by the U. S. Public Roads Administration. In 1922, according to official figures, the total tax revenue received by the State amounted to $37,037,000.

"The fact that one single class of taxpayers—the motor vehicle owners—are now paying double the taxes each year to the state that everybody paid only a few years ago, shows the present severity of automotive taxation. Clearly the time is now ripe to give consideration to the problem of easing the motorists' tax burden."

Alabama Motorists Pay $59.68 Taxes During Past Year

MONTGOMERY, Ala., Aug. 19.—Motorists in Alabama paid an average of $59.68 to the state in 1939, according to statistics just released by the U. S. Public Roads Administration.

Of this amount, $44.48 represented state gasoline taxes and $15.20 consisted of registration, driver license and other fees, it is reported.

Besides the state taxes, Alabama motorists also paid local and federal gasoline, and other federal automotive taxes which averaged about $18 per vehicle. In 1940, the Federal Revenue Act increased and extended for 5 years the federal automotive levies, which were enacted in 1932 as "temporary" levies. The increased rates of the federal taxes will cost motorists an estimated average of $4 annually, pushing the burden of federal and local taxation to $22.00 per vehicle, it is said.

Commenting on the tax burden of motor vehicle owners, as revealed by the report of the federal agency, Earl M. Hearne, secretary, Alabama Petroleum Industries Committee, said that the time has come for consideration of tax relief for the motorists of this state who are subjected to triple and quadruple taxation by state, federal, city and county governments.

Long-Range Proration Order Is Question Before Oil States

N. P. N. News Bureau

TULSA, Aug. 19.—Thirty-day oil proration orders versus long-range orders will be the big question up before the regulatory bodies of southwestern oil producing states when they hold their statewide proration hearings later this month.

Kansas and Arkansas, however, have already turned thumbs down on long-range proration orders, at least for the time being. This move is thought to reflect belief that 30-day orders are more flexible and may be readily revised to meet any shift in market demand from Illinois to the Mid-Continent.

Shortly after the Arkansas Oil & Gas Commission had held its mid-monthly proration hearing at El Dorado, it issued an order providing for a 74,000-bbl. allowed production in September, same as for August.

The Bureau of Mines' September crude demand forecast has not been issued, but the 74,000-bbl. order compares with August demand estimate of 65,200 bbls. daily.

Question of long or short term proration orders is expected to be of vital interest to Texas producers, where the railroad commission's 3-month order is checkered with shutdown exemptions.

Commission reports indicate production for the state last week was 122,935 bbls. daily average below the forecast, despite an approximate daily average increase of 34,000 bbls. due to exceptions and exemptions. The Texas Railroad Commission hearing is scheduled for Aug. 30 at Austin.

The Oklahoma Corporation Commission refuses to be caught napping by any change in the production and demand picture, and has called for purchase nominations for the 3 months period beginning Sept. 1. But their notice of the hearing Aug. 30 at Oklahoma City states that the order as issued may cover either a 1, 2 or 3 month proration period.

Possible Plan Seen To Relax 'Gas' Ban Outside Hemisphere

N. P. N. News Bureau

WASHINGTON, Aug. 19.—Possibility that the government might plan an early relaxation of its embargo on aviation gasoline shipments outside the western hemisphere today provided a question only an uncommunicative State Department seemed able to answer with certainty.

Latest statement bearing on the situation from Assistant Secretary of State Welles has been to the effect he does not know when the text of the Japanese note delivered by Ambassador Horinouchi, 2 days after the aviation gasoline embargo went into effect, August 1, will be made public. Same is true of the United States answer handed to the Ambassador Aug. 9.

While the State Department has not admitted anything regarding the content of the note and answer, there have been widely published reports that they are concerned with Japanese displeasure over the aviation gasoline embargo.

International experts, meanwhile, are guessing that the State Department will probably keep aviation gasoline embargo for a while, at least. Such opinion is based on the view the Japanese note represented a warning and that the State Department can hardly modify the aviation gasoline embargo in view of Japan's current moves toward control of French Indo-China.

Texas Commission Increases Shutdown Exemptions

AUSTIN, Aug. 16.—An increase of almost 1000 bbls. daily, to 6171 bbls., has been granted producers in the Big Lake Field of Texas by special order of Texas Railroad Commission.

The Minnie Bock, Gulf Coastal Field, was exempt from August shutdown order. Seven other fields were granted permission to produce during the last 7 shutdown days in August.

Separate Oil, Gas Commission In Texas Looms as 'Lone Star' Election Nears

Special to N. P. N.

AUSTIN, Aug. 19.—With next Saturday's run-off election between Olin Culberson and P. Pierce Brooks, to determine who shall be the third member of the Texas Railroad Commission to succeed Lon A. Smith, a live subject among the oil fraternity is the question of a separate oil and gas commission appointed by the Governor.

The subject is not a new one in Texas. In 1934 the 43rd Legislature fought over a bill to establish a new oil and gas commission to separate the regulation of the petroleum industry. With the measure almost certain of passage, having received a majority in the House and with a majority pledged in the Senate, a hotel brawl in which a State Senator was kicked about the lobby brought the measure into dispute and it died overnight.

Now, a certain faction of the oil industry argues, the duties of the Commission are too heavy with gas utility, truck, bus and rail transportation, to give the proper attention to the 3 billion dollar oil industry. They intend to seek a new oil and gas commission, appointed by the Governor, when the legislature convenes next January.

It is said that because the 2 members now on the Commission— Col. E. O. Thompson and Jerry Sadler—are unfriendly to the O'Daniel administration, the Governor will recommend the measure to the legislature early in the session. Both Mr. Sadler and Mr. Thompson were candidates for Governor against Governor O'Daniel this summer. Mr. Thompson, defeated by O'Daniel, advocated a separate commission.

Neither Mr. Brooks nor Mr. Culberson have publicly mentioned a new oil and gas commission in their campaigns. It is generally conceded, however, that should Brooks be elected, the separate measure would have a much better chance of passage than otherwise.

Large Imports of Foreign Crude is Hit By Oklahoma Stripper Well Association

TULSA, Aug. 19.—Oklahoma Stripper Well Assn. in a letter to President Roosevelt, asks that Immediate steps be taken to reduce importation of foreign oil into the U. S.

The stripper well group contended that it was unfair to U. S. producers to be forced to curtail domestic crude production while imports are allowed to increase.

"The co-operation on the part of state regulatory bodies and the producers seems to be of no avail because of the increase in imports of foreign oil into this country under the terms of the Venezuela Trade Agreement," the letter said.

Summarizing the situation, the stripper well owners wrote: "Therefore, the membership of the Oklahoma Stripper Well Assn. . . . calls your attention to the constantly increasing imports of foreign oil for the following reasons:

"1. It is unfair to the American producers of crude petroleum to be forced to curtail daily production while the importation of foreign crude is allowed to increase.

"2. It is also our opinion that any reduction of daily production in America should be accompanied by a commensurate curtailment in the importation of foreign oil.

"3. A continuation of the present rate of imports under the Venezuelan Trade Agreement will certainly be detrimental to the oil industry of the U. S."

The president was then asked to "carefully consider this matter with the hope that immediate steps will be taken to reduce the importation of foreign oil into this country."

In advising Oklahoma's Congressional delegation of this action, the association pointed out that imports under terms of the agreement averaged 210,000 bbls. daily the first five months of 1940, 92.8% above the same period of 1939; reaching 300,000 bbls. daily the first week of July, 1940.

The letter to the delegation added: "We have lost our export market and at the same time U. S. is being flooded with foreign oil. Something must be done at once to relieve the situation. Stress is becoming acute among owners of Oklahoma's 50,000 stripper wells, for in some cases they are forced to sell their oil for less than the lifting cost."

Gulf Gets Texas Contract

AUSTIN, Aug. 12.—For the second consecutive year, Gulf Oil Co. was awarded contracts to supply state of Texas with its petroleum requirements for the coming fiscal year. Contract covers products valued at approximately $1,000,000.

Stanolind Buys K.M.A. Crude

TULSA, Aug. 19.—Initial purchases of K.M.A., North Texas crude by Stanolind Oil Purchasing Co. are scheduled to begin Sept. 1, when company is expected to run a minimum of 5000 bbls. daily from the field.

It was believed in some quarters that initial runs would be increased substantially after the new and renovated line is put into operation.

Excess Production In Tinsley Field Continues To Rise

N. P. N. News Bureau

TULSA, Aug. 19.—Failure of "pipeline proration" and a "production race" loomed in the unprorated Tinsley field of Mississippi as producers last week were reported to be intensifying their efforts to "hold their own" in producing their wells.

Pipeline facilities from the field make necessary the limiting of per-well takings of crude to about 100 bbls. daily. Some wells in the field, however, are reported producing as much as 300 to 325 bbls. per well daily.

The excess output over and above pipeline takings is finding its way by rail and truck to Vicksburg and Louisiana coastal refineries. The remainder is being stored in the field and at Gulf coast terminal, it is said.

A new outlet for the crude—the E. C. Johnson refinery at Vicksburg—accounts for approximately 1500 bbls. daily of Tinsley pool. Takings may be increased to 3000 bbls. daily.

Injunctions Threatening Proration of Otis Pool

N. P. N. News Bureau

TULSA, Aug. 19. — Three-judge federal court sitting at Kansas City, Kans., took under advisement reequests by two producers seeking temporary injunction against enforcement of Kansas Corporation Commission's proration orders in the Otis pool. Producers question the constitutionality of proration procedure.

Efforts will be made to adjudicate the case as soon as possible, since it has been in litigation for almost a year. A special master may be appointed by the court to obtain additional information, it was reported here.

Bay Petroleum Corp. and the producing firm of Morgan, Flynn, & Cobb of Tulsa, in attacking the proration orders, claim proration in the Otis pool would result in financial loss to producers.

Stock Reductions In Gas, Fuel Oil Told by G.C.R.A.

N. P. N. News Bureau

TULSA, Aug. 19.—Substantial reductions in gas and fuel oil stocks at plants of the Gulf Coast Refiners Assn. membership were reported by G. C. R. A. as result of "good demand conditions in Gulf coast markets."

The association's report added that indications are that "non-integrated refiners in the coastal area are continuing to process crude at below 65% of potential capacity, while larger integrated plants in the area are operating at above 90% of rated capacity."

Stocks of Bunker C fuel dropped 73,004 bbls. during the two weeks period ending July 31, to 195,985 bbls. Inventory of diesel fuel declined 38,495 bbls., to 16,880; diesel gas oil dropped 6192 bbls., to 348,740 bbls.; and No. 5 fuel 1462 bbls., to 280,238 bbls. Total stocks of all other gas oil, standing at 487,162 bbls. July 31, were 125,954 bbls, below July 15 stocks. G. C. R. A. refiners withdrew 43,054 bbls. of kerosine from storage.

Crude runs to stills at reporting plants were up 10,245 bbls. daily average during the last half of July, averaging 61,114 bbls. daily or 62.6% of the groups total refining capacity of 114,000 bbls.

Total gasoline stocks dropped 54,218 bbls. during the two weeks period, standing at 2,999,820 bbls. on July 31.

Lion Refining Begins Construction Work

EL DORADO, ARK., Aug. 19.—Ground has been broken and actual construction work will begin immediately on an absorption recovery and polymerization plant at Lion Oil Refining Co.'s refinery here. The two units will operate as a single plant and will be so constructed that with only slight changes, output may be doubled.

While potential output of the poly plant is planned at 400 bbls. of polymer fluid daily, initial output is estimated at 200 bbls.

The absorption unit is expected to recover approximately 250 bbls. daily of "casinghead."

Process engineering plans and designs were by M. W. Kellogg Co., New York City, but construction will be carried on by Lion's own engineering and construction departments.

WITH THE ASSOCIATIONS

N.A.P.R. Hears Heil Attack Consumer Discount Practice

N. P. N. News Bureau

CHICAGO, Aug. 20. — Gov. Julius P. Heil, Wisconsin, attacked the practice of wholesalers selling commodities direct to consumers at the opening meeting of the Eighth Annual Convention of the National Assn. of Petroleum Retailers at the LaSalle Hotel here today.

The N.A.P.R. is on record as opposing this practice of selling at wholesale or giving "commercial discounts". The state of Wisconsin's Commissary Act makes it illegal for a manufacturer or corporation in Wisconsin to sell direct to consumers or employees at wholesale.

Governor Heil also told the delegates of the success of Wisconsin's law providing for the deferred registration of automobiles which last year resulted in an estimated $200,000 worth of additional business for service stations in Wisconsin due to uninterrupted use of automobiles.

Delegates and members of the N.A.P.R. registered today and a short meeting of the Board of Directors was held just before noon at which further details of the convention were completed.

Tuesday afternoon the convention heard Raymond Shaw, president of Chek-Chart Corp., tell of the increasing use of machinery on the farms.

Lieutenant - General Ford talked on the defense program and Advertising man Glen Miller impressed upon the delegates the advantages of the right kind of advertising.

Following the showing of a sound film "Penny Wise" by Corbin F. Yates of the Ethyl Gasoline Corp., the convention adjourned for the day.

Speeches by Paul Ryan, Cleveland, president of National Refining Co., Dr. Gustav Egloff, Chicago, of Universal Oil Products Co., and Judge Harry H. Porter, Chief Justice of the Municipal Court of Evanston, Ill., and General chairman of the street and highway traffic section of the National Safety Council will be a part of the Wednesday afternoon session.

Melville E. Holland

Thursday the three day convention will close following speeches by R. A. Ludlow, New York, Director of Lubrication Committee of American Petroleum Institute, J. J. Cavanaugh, vice-president of the Chicago Motor Club and Arthur T. Spence, N.A.P.R. attorney.

For the past year, the activities of the national dealer association have been under the direction of President Melville E. Holland, Racine, Wis., retailer, and Carl G. Hodges, Milwaukee, executive vice-president of the N.A.P.R.

Paul G. Hodges

Moncrief Will Head Oil Study Group

N. P. N. News Bureau

TULSA, Aug. 18.—W. A. Moncrief, Fort Worth, Independent Petroleum Association of America director, has been named chairman of I.P.A.A.'s committee of 25 which is to survey oil industry problems and make recommendations for their solution. Report is due at the association's October annual meeting.

Committee will be divided into sub-committees instructed to study, among other things, state conservation programs, importations, restoration of foreign markets and the over-all picture of the oil industry in this country.

Wisconsin 'Gas' Dealers Elect Officers

MILWAUKEE, Aug. 19. — Charles Jackson, Madison, was elected president of the Retail Gasoline Dealers' Assn. of Wisconsin at its annual convention at the Hotel Schroeder here. Other officers elected included: Edward Stubbs, Fond du Lac, vice-president; Clarence Johnson, Milwaukee, secretary; Roy Wachter, Sheboygan Falls, treasurer; O. V. Hansen, Milwaukee, retiring president, was elected chairman of the board.

The program included speeches by Mel Holland, president of the National Assn. of Petroleum Retailers and others with general discussion of the problems of the retail gasoline dealer.

Malloy Heads Ohio Dealers

CLEVELAND, Aug. 19.—M. M. Malloy, Canton, was elected president of Ohio Gasoline Dealers, Inc., statewide dealers association, for the coming year.

George F. Stall, Sandusky, was elected first vice-president; E. F. Duffy, Cincinnati, second vice-president; A. Katz, Columbus, third vice-president; and Arch Brunner, Dayton, fourth vice-president. Paul Hudson, former president of the Cleveland dealer group, was named treasurer, and H. I. Mathewson, Cleveland, was elected secretary.

Chemistry Society Plans 100th Meet

CLEVELAND, Aug. 19.—A program featuring petroleum chemistry's contribution to the automotive industry has been arranged by the American Chemical Society's Petroleum Division, headed by Dr. Per K. Frolich, Standard Oil Development Co., for the 100th meeting of the Society in Detroit, Sept. 9-13.

Dr. Merrell R. Fenske, Pennsylvania State College, will preside at a symposium Sept. 10 at which 12 reports ranging from future motor fuel and oil needs to the value of asphalt roads to motor transportation will be given. Speakers will represent several major oil companies and include Dr. T. A. Boyd, General Motors Corp.; S. D. Heron, H. A. Beatty, and C. W. Sortman, all of Ethyl Gasoline Corp.; and Dr. Fenske and R. E. Hersh of Pennsylvania State College.

In addition a general meeting of the Petroleum Division, at which 14 papers will be presented, will be held Wednesday, Sept. 11.

Runs to Stills Up Slightly in June

WASHINGTON, Aug. 19.—Daily runs of crude petroleum to stills amounted to 3,608,000 bbls. in June, which was only 1000 bbls. more than in May, but 118,000 bbls. more than in June 1939, according to Bureau of Mines reports. Imports of foreign crude decreased 9000 bbls. from the previous month, the daily average being 123,000 bbls. Stocks of crude oil held at refineries showed an increase, the total at the end of the month amounting to 56,504,000 bbls, compared with 54,060,000 bbls. on hand the first of the month.

Cole Bill Report Seen

WASHINGTON, Aug. 20.—Chairman Cole, of the Congressional Oil Control Sub-Committee, said today he expects to file an interim report within the next week. Report is not expected to be a final recommendation of the Cole Bill.

Rail Shippers Hail Re-Opening Of Trainload Hearings, Oct. 9

N. P. N. News Bureau

TULSA, Aug. 19.—Southwestern rail shipping refiners interpret the re-opening of Interstate Commerce Commission hearings on trainload rates as a desire on part of the commission to grant them relief from their complaint of "discriminatory transportation charges" by reducing petroleum rail rates.

The re-opening of trainload hearings, scheduled to begin at Oklahoma City Oct. 9, is to obtain, (1) additional information as to cost to carriers and value to shippers of single-car deliveries versus multiple-car shipments; (2) whether trainload rates should be limited to pipeline terminal points; (3) what should be done regarding rates to intermediate points; (4) the application of the long and short haul clause of the transportation act to trainload rates; (5) controlling factors to be considered in arriving at a differential between rates for single and multiple car shipments, and, (6) reasonableness of pipeline rates and tenders.

The rail shippers said they believed that the commission wants to know definitely how low they can go in meeting pipeline costs and also the most practical method of curing transportation discriminations.

Value of Deliveries

The value of trainload deliveries to southwestern rail-shipping refiners and to many Mid-Western jobbers has been definitely established by actual "test" shipments and by detailed marketing surveys made by refiners and jobbers, it is said. "The practicability of multiple-car or cargo deliveries from the Southwest to the Mid-West has been clearly proven," according to most rail shipping refiners and jobbers.

Rail representatives have not indicated as yet the extent of their exhibits in answer to the commission's calls for detailed cost study to carriers of single and multiple car deliveries.

The federal co-ordinator of transportation had this to say regarding trainload rates: "the data indicate a full tonnage cargo train moving from a single origin track to a single destination track, without breaking the train line, would do so at a line cost of less than 2 mills per net ton mile, or below the average cost of pipeline transportation," adding that this type shipment would eliminate much of the present terminal operations and expense. This type transportation "would be lower than any form of land transportation," the co-ordinator added.

Rail Savings Told

An exhibit presented at a recent hearing in which trainload rates were discussed, showed that volume shipments offered many savings in rails' transportation costs. Savings to rails on these shipments based on only 3 savings factors were evaluated in the exhibit at 8.2c per cwt. or approximately 0.5c a gal. on gasoline.

Southwestern refiners pointed out last week that the Interstate Commerce Commission has no jurisdiction over water transportation rates, but that in all probability water terminal points would receive the same treatment as that given pipeline terminals. But for the same reason, it was believed in some quarters that while the commission may not be allowed to ignore the combination of pipeline and rail rates, it may be forced to ignore the combination of water and rail charges. In any event, a spread of pipeline-competitive trainload rates to marine terminal points was expected here, whether ordered by the commission, or inaugurated by the rails on their own initiative.

In discussing the ICC's call for information as to reasonableness of pipeline rates and tenders, rail shippers indicated they believed this would not be a very vital factor at the hearing. These shippers contend that if the rails' petroleum tonnage was turned over to the pipelines, additional arteries would be necessary to cover the entire territory. Thus the facilities of one transportation medium would have to be junked in favor of another medium, whose facilities would be inadequate, they commented. Rails need this petroleum business, they added, and the country needs the rails in the interests of national defense.

Some shippers see in the reopening of hearings the possibility that the ICC has given serious consideration to proposal of the Iowa Independent Oil Jobbers Assn. Iowa jobbers propose that the "lowest out-of-pocket" cost to shippers, by any means, from Oklahoma to destination be determined and the petroleum rail rate from Group 3 to destination be made exactly the same in cents per cwt. and that fourth section relief be granted so that there would be an "equality in transportation costs paid by all shippers concerned." Pipeline terminal points were exempt from this plan. To these terminal points, it was suggested trainload rates be established that were equal to cost of pipeline transportation plus 6% net return on investment.

'Most Practical Way'

"The two plans suggested by Iowa jobbers seem the most practical way to satisfy everybody and at the same time give everyone the right to ship by whatever method he desires," one southwestern refinery representative stated.

Speaking of the plan of Iowa jobbers, James F. Lawrence, counsel for Petroleum Rail Shippers Ass'n said: "If the trainload rate to the pipeline terminals is made the same in cents per cwt. as the pipeline cost, then probably the one-car rate to a destination could be higher than the combination of the trainload rate to the pipeline terminal and the rate from the pipeline terminal out, in an amount sufficient to cover the terminal cost in re-shipment, thus allowing the railroads full benefit of that savings."

Mr. Lawrence estimated terminal costs at 4c a cwt. or 0.25c a gal. on gasoline. "This, in my opinion, would be the fairest way to make both sets of rates, would give the all-rail shipper an equality and at the same time allow railroads full compensation when hauling in single car lots," Mr. Lawrence said.

"One of the very strong arguments in favor of trainload rates," he continued, "is that by such a method you will cure the evil that might result from reductions in the rates out of the pipeline terminals which would automatically throw out of joint the through single-car rate to a destination.

"And once the trainload rates are established, if low enough, then the rate structure will take care of itself and there will be no more reason for a litigation over the rates out," he added.

William T. Atkins, Oklahoma Oil Man, Dies at Iowa Home

William T. Atkins, 56, Muscatine, Iowa, vice-president in charge of marketing of Skelly Oil Co., died at his home Aug. 13. Funeral services were held Aug. 16 at Holden, Mo.

Mr. Atkins joined Skelly Oil Co. in 1921 and was appointed vice-president in charge of marketing in 1931. He was born in Johnson County, Mo. Among organizations of which he was a member were Kansas City Oil Men's Club and American Petroleum Institute's Board of Counselors.

William T. Atkins

Edward W. Jones

Edward W. Jones, 58, Tulsa, president of E. W. Jones, Inc., died Aug. 9 at a Tulsa hospital. He was widely known in oil circles as a producer and drilling contractor. He is credited with having discovered several small Oklahoma and Kansas fields.

Mr. Jones was a native of North Carolina and entered the oil business in 1920. He moved to Tulsa from Dallas in 1933 to organize the company which he headed at the time of his death.

* * *

Grant Carroll

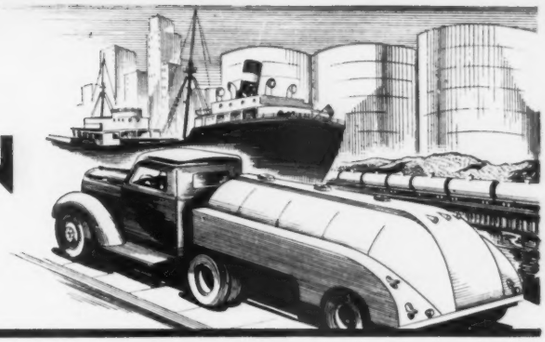
Grant Carroll, 72, oil distributor at Orleans, Ind., was killed Aug. 5 when his automobile crashed head-on into a bus between West Baden and Paoli, Ind. Mr. Carroll, who had been in the oil business in Orleans since 1926, was well-known in Orange county in southern Indiana, and leaves one son, Frank, who was in the oil business with him.

* * *

James A. McIntyre

James A. McIntyre, 48, district representative for the Pure Oil Co. died Sunday afternoon at his home in Canton, Ohio, after an eight-month illness. He had resided in Canton for 14 years. Mr. McIntyre was born in Dorchester, New Brunswick, Can. For 18 years he traveled for the U. S. Rubber Co. He had been associated with Pure Oil Co. since 1934.

OIL TRANSPORTATION



Trainload Rate Still Possible Says Railroad

N. P. N. News Bureau

CHICAGO, Aug. 17.— Proposed trainload rates from the Southwest to Middle Western points are still being considered by the Rock Island, according to company officials here.

The railroad said it has experienced difficulty in obtaining necessary information from members of the Petroleum Rail Shippers Assn. relative to the amount of increased business which the new rates will bring the railroad to offset the lower rates.

Rock Island has been anxious to file its trainload rates for some time but has been held up by this lack of co-operation, it was said by those anxious to see the Rock Island proposal put into effect.

One large marketing company was reported making negotiations to bring California gasoline around from the West Coast through the Panama Canal, and then up the Mississippi in barges to the Middle West.

Whether or not California gasoline brought into the Middle West from the West Coast by water would be competitive with Group 3 gasoline shipped via rail, however, could not be learned here. This marketer, however, said this plan was being worked out as an alternative to shipping from the Mid-Continent if the proposed Group 3 trainload rates are not put into effect soon.

ICC Calendar On Oil Trucking

Emanuel Alboum, Pennsylvania to New York Extension, MC-86188 Sub. 4. Findings in a prior report to operate as a contract carrier by motor vehicle, in interstate or foreign commerce, of petroleum and its products, in tank trucks modified by correcting and clarifying the description of the area to be served in Pennsylvania and New York as follows: Between points in McKean, Warren, Erie, Crawford, Mercer, Venango, and Forest Counties, Pa., on the one hand, and points in New York on and south of New York Highways 39 and 245 from Dunkirk to Nunda and on and west of New York highways 63, 63-A, 70, and 21 from Nunda to the Pennsylvania Line, over irregular routes, except as otherwise authorized in Nos. MC-86188 and 86188 (Sub. No. 2).

W. S. Couch, South Dakota, (MC-20224 Sub. No. 1), Application denied to operate as a common carrier by motor vehicle of petroleum products in bulk, from refining and distributing points in Kansas to Lynch, Anoka, and Naper, Nebr., and Winner, S. Dak., over irregular routes.

Tanker Rates Continue Drop

N. P. N. News Bureau

NEW YORK, Aug. 20.—Further drop of 1c for "clean" tanker rates, Gulf-North Hatteras movement, was reported the past week with fixtures of gasoline made at 18c, kerosine at 19c, and No. 2 fuel at 20c, all for August loading. Fixtures were for 75,000 bbls. each.

"Dirty" boat rates were unchanged at 20c for 10-19.9 gravity and 18c for 30 gravity or lighter crude. One boatman reported a fixture of 75,000 bbls. of mixed heavy and light crude at 20c and 18c respectively.

Report of one "dirty" boat of 100,000 bbls. of heavy fuel being fixed at 20c was heard but confirmation could not be obtained.

Japanese Tanker Lifts Gasoline Cargo

N. P. N. News Bureau

LOS ANGELES, Aug. 19.—An unconfirmed report here states that the Japanese naval tanker, Akatuki Maru, lifted a cargo of motor gasoline from a San Francisco terminal about Aug. 10 with an affidavit signed by Mitsubishi, Japanese Trading Company, that no license was required. It was also reported that another Japanese tanker lifted a cargo of low grade crude from Richmond, Calif., terminal for Russian interests. Another source stated that shipments of aviation gasoline were going forward documented for an oil company at Panama.

Report on Transportation Bill To Go Before Senate Shortly

N. P. N. News Bureau

WASHINGTON, Aug. 19. — Chairman Burton K. Wheeler plans to bring up the conference report of the Transportation, or Omnibus Bill (S 2009) as soon as the Senate finishes debate on the Army Conscription Bill, probably within the next few days.

Senate, if it follows the example of the House in approving the report, will have taken the final step preparatory to submission of the legislation to the White House for President Roosevelt's signature.

As was the case, when the Transportation Bill conference report was before the House, most of the Senate opposition is expected to center around the elimination by the conference committee of the Miller-Wadsworth amendment and the modification of the Harrington amendment.

Miller-Wadsworth amendment would have directed the Interstate Commerce Commission to permit any carrier to reduce its rates as long as the reduced charges were "compensatory". Originally prohibiting lay-offs of railroad employes during mergers, the Harrington amendment was changed in conference to give them limited protection.

The conference report as it came to Senate bearing House approval, retained the various amendments designed to exempt barge lines and tankers from ICC control and a modified version of the House provision abolishing reduced land-grant railroad rates in the west.

As changed in conference the bill apparently will permit the continuation of land-grant rates on petroleum and petroleum products used by the army and navy. Oil bought by other federal agencies would be subject to the normal freight charge providing the railroads release all claims to grants of lands upon which they have not perfected their patents.

Truck Transportation Cost from East Is Cut by New Pennsylvania Turnpike

N. P. N. News Bureau

NEW YORK, Aug. 17.—A large proportion of the East-West truck traffic formerly using northern routes will switch over to the Harrisburg-Pittsburgh Turnpike when completed, trucking circles here expect. With 3 routes now in operation between the East Coast and the West, the new highway will add the fourth and most economical means of transportation, officials of the Pennsylvania Turnpike Commission confidently predict.

The main existing highways, handling an approximate total of over 4,000,000 motor vehicles annually, are U. S. routes 6, 22, and 30 which cut across Pennsylvania's mountainous districts and U. S. 20 which runs from New York up to Albany and west to Cleveland and Chicago.

In winter weather, snow and sleet form a handicap which impedes truck traffic. The northern route through Buffalo, though proportionately more expensive, bears the brunt of winter traffic.

Not only will the new highway minimize the dangers of winter travel and the saving of much mileage—145 miles extra to Chicago and 206 extra to Kansas City via the Albany-Buffalo route—but it also promises to be far more economical. According to estimates of the Pennsylvania Turnpike Commission, savings will run about as follows: For semi-trailers $17.69; for 52,000 lb. trailers $23.25 and for 62,000 lb. heavy trailers $27.60.

Estimated savings are expected from the elimination of the driver's helper over a shortened haul with less wages, less insurance because of the greater safety, lower tire and fuel cost, and less general maintenance and overhauling.

Company Policies Are Profitable 'Iowa Plan Victim' Finds

THIS is a true story of an "Iowa Plan Victim."

Right names will not be given, because the principals are a bit ashamed of the episode. It has to do with a service station operator by the name of Bill Schultz in Louisville, who was trained in a company-operated station, under the close supervision of an aggressive oil marketing company. But the company, because of the fear of God, Washington, and interpretations of just what constituted an "employe", followed its counsel's advice literally, dropped its expensive and prosperous station and rented it to Bill at so much a month.

Bill was given a company sales manual, some advertising material, told that he was now a member of that grand fraternity of Independent Dealers selling products for the greatest oil company in the world. He was given a quota, but was told, in writing, that the company didn't say it MUST be made, as in the past but, if he didn't mind, they would like to see him make it. Bill's old supervisor, whom he almost loved because of their many past battles, was made a salesman.

No more daily reports; no more unexpected visits from the boss; no one to catch him if he failed to shave; no one to jack him up about his towel and toilet paper supply getting low; no more bragging to other operators how he told the big shots where to head in, and how he put the supervisor on the spot by complaining to the head man about the busted toilet he had reported 4 times.

No more bookkeeping and window dressing and outside displays. If he wanted to cut down on the lights, that was his business, and if he didn't feel like going to a meeting, the heck with it. If he wanted to carry personal credit, or close up at 9 o'clock or run a radio, he could. In business for himself! Neighborhood merchant—just as important as the corner drug store or the grocery.

Awakens Too Late

But to Bill's sorrow, and too late, he discovered that things were not so hot with him. He found that maybe some of the "screwball" company policies might be right after all. No one had ever told him that cutting down on lights at night would reduce his day business. Those fellows the "dumb" credit manager had turned down, that he thought were as good as gold, hooked him and then quit coming around. The little old "worry bird" flew in Bill's window. This in turn caused more loss of interest in housekeeping and personal appearance, and it is a law of nature or petroleum marketing that, when that happens, gallonage starts its toboggan. When the downward slide begins, trouble and red ink perch alongside the "worry bird". So it was with Bill. He was broke, and the condition of his station could mildly be called "terrible". "I'm a whipped dog", he told his old supervisor. He was looking for a job. Any kind of job.

Usually when men get in Bill's shape, the company sales representative gets busy and finds another operator with the necessary money to buy the stock and equipment. If other duties are pressing, or operators are scarce, sometimes just the old mazuma and the desire to run a service station are all that are needed to fill the specifications.

There was once a man with one leg who leased a station from a rather large company. True he had a cork leg ordered but, unfortunately, there was a quota to make and a rather heartless salesman managed to get the leg money tied up in oil and grease. No end of embarrassment, but that's another story.

Bill Gets Another Chance

Bill's sales representative, instead of checking him out and getting another operator, decided to see if he couldn't help him instead, if Bill would do his part. A careful survey was made around Bill's station. It showed a well kept, ably managed competitive station two blocks away. A clean alert young operator was gradually lassooing Bill's business. On the same principle as the NPN Service Station Inspection form, the competitive station was analyzed by sections, covering such divisions as rest rooms, lighting, building interior, etc. Then a call was made on Bill. First he was given an opportunity to spill his woes—and they were many. When he had talked himself to the climax of being a "whipped dog", the competitive station form was gone through carefully, and a comparative scoring made on NPN's simple formula. The 2 stations bore about the same relationship as the devil and holy water. Going still further, an outdoor survey showed Bill's location by far the better from a traffic viewpoint.

"Now, Bill", he was told, "simply because no one comes around here and tells you that your face is dirty, your follow-up system shot, your records messed up, and point out the dozens of other things that are wrong, you give up and let the kid down the street get the business.

"The lord gave you the same amount of brains that he did the other fellow, and on top of that he has given you longer to develop them. Are you a fighter or a quitter? If your competitor is a good manager, why aren't you? I'll tell you what I will do, Bill. If you want to show the company that you are a man instead of a mouse, that you have the ability we thought you had when the station was given you, I'll come down tonight and start a clean up campaign.

"First, we'll start a list of lost customers and call on a given number of them daily along with new prospects. Then we will visit every car owner in a radius of six blocks of the station. But first the place must be cleaned from "cellar to garret". You and your helper must get new uniforms, and you will have to make arrangements for money or credit to stock the station.

"You can take it or leave it. It is up to you. Do you want to fight or quit?" Bill said he would try, and to "let's go."

Bill Wins Battle

Bill and the sales representative won the battle. A new service truck was recently added to the modern greasing equipment Bill bought for the station. His gallonage is the best in the company's history. He is buying in truck load lots instead of compartments.

So, while he was an "Iowa Plan Victim", he recovered, but the recovery was slow, complicated, discouraging and extremely expensive to the company. It shouldn't have been necessary in the first place. The sales representative who helped Bill recover maybe should have a light pat on the back for doing it; but he should have had a kick in the pants for ever permitting Bill to get in such a shape. As the writer happens to be the sales representative in question he should know. He suspects that the same mistake is being made occasionally by other sales representatives. For what it is worth, here's his prescription that kept it from happening again:

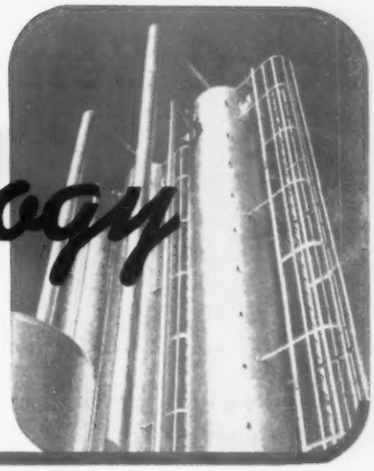
Select Men Carefully

In selecting men for stations, if yours is one of the companies not having personal rating charts for operators, make one. Great care is used in selecting men for payroll jobs and they can be fired the next day but it costs money to change operators. A number of the larger companies have personal rating charts for operators, but many do not. Here is a simple little list of

(*Continued on page* 38)

Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY



EVER on the alert for the dramatic aspects of scientific development, newspaper reporters frequently overstep themselves in predicting the immediate possibilities of scientific discoveries and, in their zeal to shorten the gap between discovery and practical application of scientific facts, cause considerable apprehension. Recently the public has been taken off the deep end with tales of atomic energy.

Looking back a hundred years it might be wondered what sort of report would have been made by these overzealous reporters if it had been they who questioned Michael Faraday regarding the value of his discovery that electricity is generated in a wire moving across a magnetic field. His reply that electricity might be taxed some day no doubt would have so stirred their imagination that they would have had today's hydro-electric power plants completed by the time the Forty-niners headed for California.

The petroleum industry is not threatened, of course, nor the coal industry, by the discovery of means for releasing atomic energy, as any technically trained man knows. By itself, it is an impressive fact that 10 pounds of a certain uranium isotope, recently discovered, is capable of releasing power equivalent to 30,000,000 gallons of gasoline. The catch is that present methods of production of this material are only capable of producing it in millionths of a gram, that present atomic engines (cyclotrons) weigh upward of 150 tons, that no means of control of release of energy has been discovered, and that other seemingly insurmountable problems are faced in utilizing this energy.

Far be it from anyone to predict impossibility of harnessing atomic energy eventually but no one need worry about investments in the oil industry on this account during the remainder of his lifetime. On the other hand, no parallel is intended between developing atomic energy and electric power. Efforts to speed up the release of energy of radium were made 30 to 40 years ago and the sun has long been known to release a horsepower of energy per square yard of the earth's surface without development of practical methods for harnessing this power.

★ ★ ★

Diesel exhaust gases are non-toxic, results of an investigation carried out by the Cummins Engine Co. show. This investigation was not concerned with the offensive odor so frequently associated with the diesel engine as used in trucks and buses but only with that odorless and treacherous component, carbon monoxide. Tests in which properly adjusted engines were operated within their rated range showed that carbon monoxide was present in too small quantities to be detected by the Orsat analysis.

Contrasted with this was the Bureau of Mines test results for the exhaust gas from gasoline engines which averaged 7% carbon monoxide. The importance of small proportions in the atmosphere is evident from the fact that 0.12% is reported to cause slight palpitation of the heart within 30 minutes, a tendency to stagger in an hour and a half, and mental confusion, nausea and headache in 2 hours.

In spite of this greater safety of the diesel engine in this respect and of the low volatility of diesel fuel, the Bureau of Mines rejects the plea of proponents of the application of diesel engines to underground haulage to recommend the engine in this service. Extensive investigation has been made by the Bureau and the results recently published. The engine company's findings are confirmed in the Bureau report for a properly adjusted engine but at the same time it was found that when diesels are operated at fuel-air ratios on the rich side, the exhaust gas was similar in composition to that of gasoline engines, containing high concentrations of carbon monoxide and definite concentrations of hydrogen and methane. The conclusion is reached that ventilation must be provided if exhaust gases from diesel engines are discharged in underground working places.

Although, the Bureau points out, in respect to exhaust gases, minimized fire and explosion hazards, the diesel appears less hazardous than the gasoline engine, whose use underground has been discouraged, such generalizations are not accepted as conclusive evidence that safety is inherent in diesel engines in underground service. The various hazards of the diesel in this service are discussed in considerable detail in the Bureau's Report of Investigations R. I. 3508, a 48-page publication.

★ ★ ★

An airplane disaster is not the only ammunition for the advocates of safety fuel for use in airplanes. The recent tragedy of the gasoline-electric powered passenger coach of the Pennsylvania railroad at Cuyahoga Falls, Ohio, illustrates as well as an airplane crash the effects of a gasoline fire in combination with a wreck. One report of this head-on collision with a double-head freight train states that only 9 of the passengers died as the result of the collision while the remaining 34 were burned to death.

Although accidents of this kind are rare their influence will long be felt in affecting the trend of power selection for public conveyances, particularly since the diesel engine has become of rapidly growing importance in the transportation field. Use of the diesel in airplanes as well as of engines adapted to gasoline of lower volatility are considered possibilities in minimizing danger from fire and explosion. Bus transportation officials also will give the diesel engine more consideration as a result of this unfortunate event. M. G. V.

Total Removal of Sulfur Compounds Is Goal of Sweetening Technique†

By P. M. Robinson*

ABSTRACT

Sweetening of gasoline, originally employed to remove malodorous sulfur compounds, is also a process for removing corrosive sulfur compounds and compounds which affect anti-knock quality of gasoline or its susceptibility to anti-knock compounds such as tetraethyl lead. The doctor treatment is at a disadvantage particularly from the standpoint of increasing lead requirements, loss of gasoline emulsified in the blackstrap, and problems in the disposal of spent solution. Copper processes were developed because of these difficulties and have definite advantages. Another forward step in sweetening processes is the use of solutizers and complete removal of sulfur compounds. The real cure of the future is removal of sulfur compounds from the crude before it enters refining equipment.

SWEETENING of gasoline means the removal of malodorous sulfur compounds, such as hydrogen sulfide and mercaptans. Practically all crude oils contain certain sulfur compounds which partially decompose during primary distillation with the formation of hydrogen sulfide and mercaptans and leave the tower with the straight run gasoline. Hydrogen sulfide and lower molecular weight mercaptans may be removed by caustic washing but the wash should follow primary distillation immediately or elemental sulfur will form and in the presence of mercaptans will cause the gasoline to be corrosive to a copper strip. Once hydrogen sulfide has oxidized to elemental sulfur, caustic washing will not produce a non-corrosive gasoline and treatment with sodium plumbite solution must be resorted to. If the straight run gasoline is reformed and sulfur compounds are present, hydrogen sulfide and mercaptans will be present and the gasoline will be sour to the doctor test and corrosive to a copper strip.

The additional products from primary distillation that are used as cracking stocks also contain sulfur compounds and when these are subjected to the high temperatures of cracking form hydrogen sulfide and mercaptans. Practically all cracked gasolines as they come from the cracking plant proper are sour and corrosive. In most plants, cracked gasoline goes to a stabilizer immediately and providing the vapor pressure of the finished gasoline is not too high all hydrogen sulfide will be removed with the overhead gases. However, if the vapor pressure of the stabilized gasoline runs higher than 12 to 13 pounds Reid, hydrogen sulfide will be included in the gasoline and it will be corrosive.

Hydrogen sulfide is detrimental to the operation of any of the processes used for mercaptans removal and where present, should be removed before subsequent sweetening operations. Stabilizers are efficient plants for this purpose but where they do not accomplish the operation, caustic washing should be used.

*The Pennzoil Co., Oil City, Pa.

†Presented at a meeting of the Department of Manufacture of the National Petroleum Association in Buffalo, May, 21, 1940.

Influence on Knock Recognized

Until a few years ago, some straight run and most all cracked gasolines were treated with sulfuric acid or clay for gum and color stability and reduction of sulfur, and in some cases rerun. This generally produced a gasoline satisfactory for odor but in cases where it was not, plumbite or hypochlorite treating was used. However, as more became known about knocking qualities of gasoline it became evident that acid treatment lowered the octane number of the gasoline, especially cracked gasoline because it not only removed sulfur and gum compounds but the diolefines which have excellent anti-knock value. Research chemists found that several compounds could be used as inhibitors to gum and color formation and many gasolines could be marketed without acid treatment. The action of these inhibitors seemed to be that they absorbed oxygen more readily than the hydrocarbons and consequently kept the oxygen from combining with the unstable compounds.

Elimination of acid or clay treatment left a gasoline of a rather foul odor and sweetening operations became general.

The two most widely used methods were treatment with sodium plumbite solution and sulfur or a sodium or calcium hypochlorite solution. The actions of these two solutions are practically the same on mercaptans and for briefness, sodium plumbite will be used as an example. Both treatments convert mercaptans to disulfides which have no objectionable odor. The total sulfur content of the gasoline is not lowered or if it is, it is merely incidental.

The reactions involved in the sodium plumbite and sulfur method are as follows:

$$2\,RSH + Pb(NAO)_2 = (RS)_2\,Pb + 2NAOH$$
$$(RS)_2\,Pb + S = R_2S_2 + PbS$$

These reactions on the face of them look like clear-cut chemical reactions and if a plumbite sweetening plant operated strictly in accordance with them should give no trouble whatever. However, there are numerous side reactions that go on, such as the formation of polysulfides which never reach the lad sulfid quilibrium.

ALMOST every refiner operating a plumbite plant is familiar with the fact that the plant will operate satisfactorily and then suddenly, for no accountable reason, will fail to function. The mixture will not break, lead sulfide will be carried over with the finished gasoline, or the gasoline will be corrosive. It is true that most of these difficulties can be traced to lack of technical control of the operations or to bad design of the equipment, but all in all a plumbite sweetening plant is one of the most recalcitrant pieces of equipment used in refining.

At about this same time tetraethyl lead began to be extensively used as an anti-knocking agent. It became evident that sweetening lowered the octane number of the gasoline, i.e., it decreased susceptibility of the gasoline to lead treatment. Also, it was discovered that sweetened gasolines required much larger amounts of inhibitors to give them the stability of unsweetened ones with less inhibitor.

It has been demonstrated that these deleterious effects are caused principally by polysulfides formed by addition of too much sulfur during the sweetening operation and

by failure of the chemical reactions to progress to the lead sulfide stage. Also, the disulfides formed in the reaction are worse in this respect than the mercaptans from which they are formed. As far as the operation of a plumbite plant is concerned, it can be operated as successfully as any other strictly chemical operation providing that it is given the same careful technical supervision that all of these plants require, a thing that is seldom done in a plumbite plant.

However, the nature of the reaction is such that it must increase inhibitor and lead requirements. Additional drawbacks to the process are loss of gasoline emulsified in the blackstrap and disposal of the spent solution. True, there are efficient means of recovery of the gasoline by centrifuging from the blackstrap and of the lead sulfide by heating and blowing with air, but these are expensive and require the installation of additional equipment. Regardless of the efficiency of recovery there is still some spent solution to be discarded and this is a problem to the refiner.

The aforementioned difficulties have caused the advent of the so-called copper sweetening processes led by Perco, Universal Oil Products, and Hover or Linde Air. The reactions involved in these processes are the same and they differ only in their manner of application.

$$2\,CuCl_2 + 2\,RSH = 2CuCl + R_2S_2 + 2\,HCl$$

Regeneration of reagent is accomplished by oxygen from air or pure oxygen.

$$2\,CuCl + 2HCl + {}^1/_2\,O_2 = H_2O + 2CuCl_2$$

Cupric chloride plus mercaptan produces cuprous chloride plus disulfide plus hydrochloric acid. Cuprous chloride plus hydrochloric acid plus oxygen produces cupric chloride and water. The cupric chloride is used either as a solution and contacted with the sour gasoline or is impregnated on a solid carrier, such as, pumice or fullers earth and the sour gasoline is filtered through a bed of the material similar to percolation filtration. Oxygen or air is intimately contacted with the gasoline before it enters the plant for regeneration of the reagent and the process is selfsustaining. Copper sweetening plants have processed thousands and thousands of barrels of gasoline by these oxidation and reduction reactions without a shutdown or without any loss in efficiency.

Copper Process Advantages

The advantages of these copper processes are as follows: Very simple and inexpensive equipment are requnred and sulfur is not requnred to be added during the process with the consequent formation of polysulfides. Loss of octane number with sweetening is slight, lead susceptibility is not lowered, and no more inhibitor is required for the sweetened gasoline than for the unsweetened providing the plant is operated correctly. This last statement needs some elaboration. Though a copper sweetening plant is a relatively simple piece of equipment, it is like a plumbite plant a chemical operation and must be technically supervised. The reactions shown do go to completion when the plant is operated right but when it is not and regeneration is not complete, it is very easy to see an operator is in a nice mess.

Hydrochloric acid passes on through the equipment causing extreme corrosion. Cuprous chloride goes with the gasoline leaving the reagent expended. Copper salts are dissolved in the gasoline which is about the worst thing that can happen. Inhibitor requirements mount tremendously when copper salts in any appreciable amount are carried with the gasoline.

Some plants follow the copper process with zinc sulfide treatment which removes any copper salts that are carried with the gasoline. This method is quite satisfactory when the plant is functioning properly but cannot correct for improper operation. Other plants follow copper sweetening by the addition of a deactivator which neutralizes the oxidation reaction of copper salts carried in the gasoline. Addition of deactivator is satisfactory if laboratory analysis of copper content of the gasoline is made to indicate how much deactivator is required. The only drawback is that both treatments are only added expense to the sweetening operations.

There is scarcely any lowering of octane number after copper sweetening; and lead susceptibility and inhibitor requirements are unchanged. This is possibly true because sulfur is not added to the gasoline with the treatment to form the injurious polysulfides and that disulfides are very little worse in this respect than mercaptans.

Make Forward Step with Solutizers

There is another process of sweetening that has received considerable attention of late. The solutizer process, perfected by the Shell Development Co., goes to the root of the trouble and completely removes all sulfur compounds which cause trouble. By this process it is claimed that octane number of sweetened gasoline is raised instead of lowered and that lead susceptibility is increased and inhibitor requirements decreased. This process should be classed as a definite forward step in sweetening processes. As has been said before, caustic may be used to remove mercaptans. Higher molecular weight mercaptans are insoluble in caustic solutions and caustic alone will not produce a doctor sweet non-corrosive gasoline.

However, by the addition of a solutizer or an aid to solution these mercaptans can be dissolved into the caustic solution. One of the successful mixtures is potassium hydroxide plus potassium isobutane. Sodium solutions may

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also be used. The spent solutions may be recovered by heating and blowing with air and reused.

There can be little doubt that with the importance of octane number of gasoline stressed as highly as it is today, sweetening operations must develop into processes which aid rather than depreciate the octane number of the gasoline. This is, of course, as true of lead susceptibility and inhibitor requirements.

In conclusion, I wish to express the hope that sulfur removal operations will develop into process of total removal of sulfur from the crude before it enters into any of the refinery operations proper. Most of us refiners have a process of partial sulfur removal of which we are not very proud. We allow the sulfur compounds to react with the materials of construction of our equipment. When any of us add up our annual corrosion bill we are staggered. The real cure is remove the sulfur before it enters the equipment.

* * *

Revamped Doctor Plants Minimize Deficiencies†

By Charles D. Lowry, Jr.*

Doctor plants can be vastly improved over what they have been in the past. We do not believe that any one sweetening process is the answer to the problem of every refiner. Moreover, the problem often is not how to start from scratch and build a new treating plant, but to decide the question—do the advantages of some other method of sweetening justify tearing out a good doctor plant? Can it not by relatively simple means be made to give satisfactory results?

Usually the refiner does not go to the trouble of settling his spent doctor, but puts it in an open tank and blows it with air. The gasoline in the black strap, particularly if it is cracked gasoline, tends to oxidize, aided by the catalytic effect of the lead sulfide, and, oxidizing faster than it evaporates, coats the particles of lead sulfide with an impervious gummy deposit resistant to the action of oxygen. The process of regeneration, which consists in the re-solution of lead sulfide in caustic in the form of sodium plumbite, goes on slowly, if at all. If the gasoline is very sour, the regenerator cannot keep up with the treating and larger or smaller amounts of new lead must be continuously added to the treater. At the same time, the gasoline emulsified in the black strap, which may reach 50% of the total volume, is either evaporated, a total loss, or oxidized to become a positive detriment to both the regeneration and the color of gasoline subsequently treated.

Cost Is Black Strap Problem

The problem of the cost of doctor sweetening, therefore, is primarily a problem of breaking black strap emulsion, recovering the gasoline and putting the lead in suitable condition for oxidation. This may be done in several ways. The most elegant method is use of a centrifuge. Initial cost of the equipment is high, but it is of long life, inexpensive to operate, and pays out through the gasoline saved. It is only recommended, however, for refineries of large size or those handling very sour gasoline.

Another method is the addition to it of spent caustic containing sodium sulfide until all of the lead has been precipitated as lead sulfide. Heating and circulating a tank of black strap after this addition will liberate the gasoline, which may be drawn off and separated from the caustic layer, now free of lead. This may be used as a caustic wash, leaving the recovered lead sulfide to be made into doctor with fresh caustic solution. The process has the added advantage that it eliminates a portion of the caustic layer, which carries with it salts and other impurities such as tar acids that tend to build up in the doctor solution with frequent regeneration. Some discarding of doctor solution from time to time is always advisable. However, this method also is not satisfactory in small installations.

It should be pointed out that in theory doctor treating involves no permanent loss of litharge, but does involve in the regeneration step a conversion of caustic soda into salts, primarily sodium sulfate and sodium thiosulfate. The effect of their building up is to increase the tendency to emulsification, decrease the solubility of lead and increase the specific gravity, so that gravity is no longer an index to the caustic concentration of the doctor solution. One reason for failure to secure proper doctor regeneration is often deficiency of free caustic in the doctor solution.

A third means of breaking black strap, simpler but not applicable in all cases, is merely warming it, which in many cases will liberate the gasoline and cause lead sulfide to settle to the bottom of the tank.

Recently quite successful work has been done with demulsifying chemicals, which added to black strap emulsions break them at reasonable cost.

Spent doctor solution containing gasoline is practically impossible to regenerate by action of air in an open tank.. But the lead sulfide freed of gasoline can be re-oxidized at a rate of at least 0.5 pound per barrel per hour, when contact is good, and it is blown in a tank relatively small in diameter and deep, rather than flat and shallow. This rate may be tripled by pumping the doctor solution from the oxidizing tank with air through a baffle column, which greatly increases the efficiency of contact of the solution and suspended lead sulfide with air .Moreover, doctor solution can be regenerated by the use of a baffle column even though it contains a considerable proportion of gasoline, although, when this is done, the gasoline is of course lost.

With proper regeneration, the chemical costs on a properly operated doctor plant are, we believe, no greater than on a copper plant treating the same gasoline.

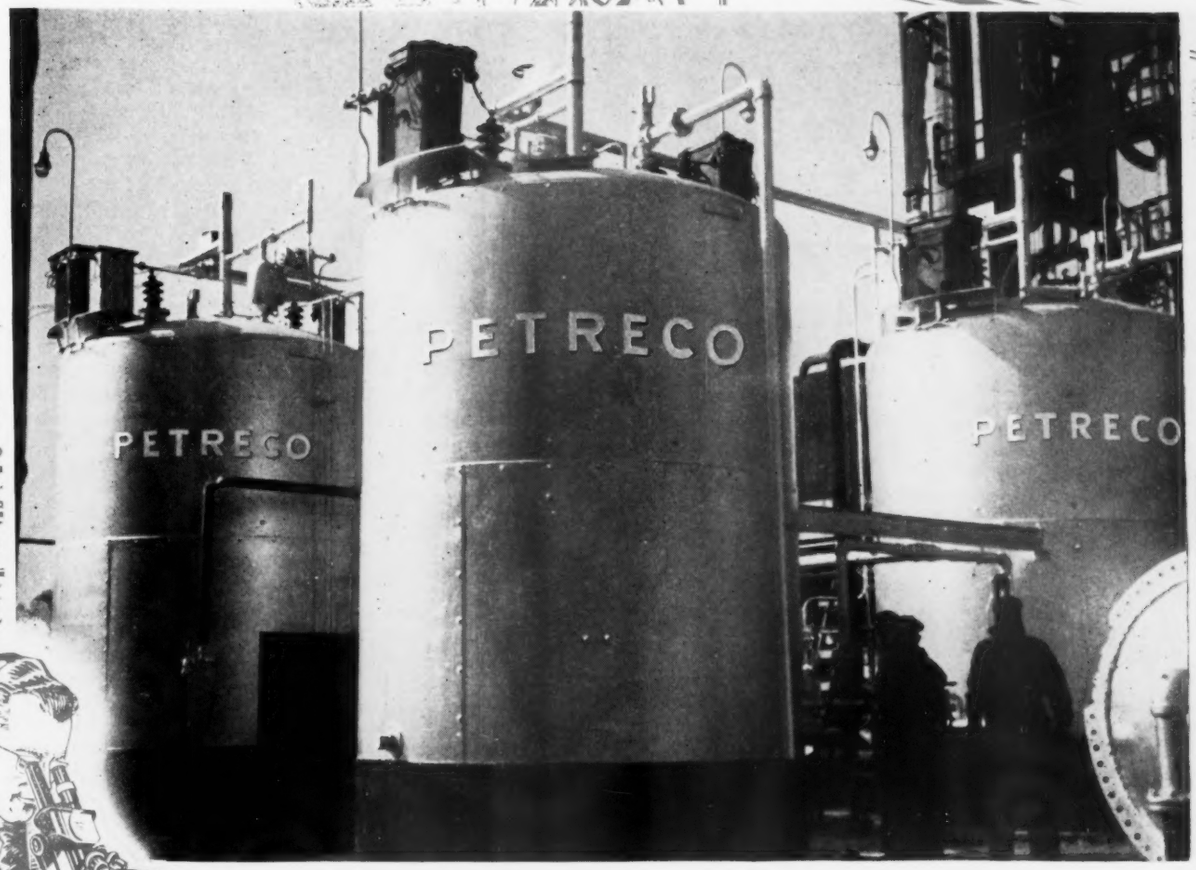
Octane Number Loss

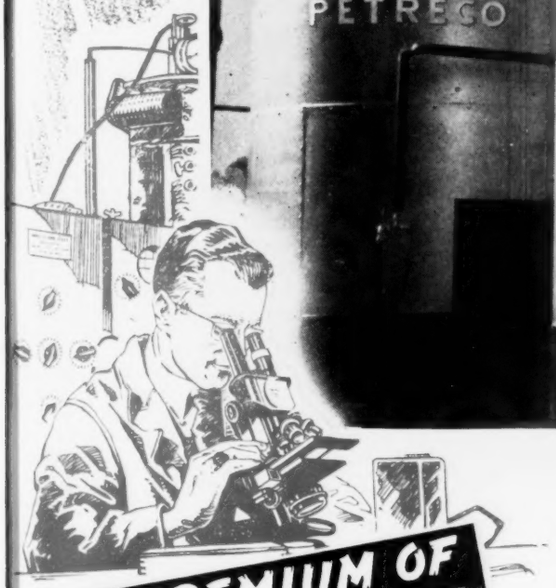
The second charge in the indictment against doctor sweetening is that it causes loss of octane number. A fundamental discovery is the fact that gasolines may be sweetened with a great excess of sulfur and yet be non-corrosive. If the amount of sulfur used is kept to a minimum and the break is slow, polysulfides break down to di-sulfides and lead sulfide. Often a large excess of sulfur, as much as three or four times the theoretically necessary amount, may remain in the gasoline as polysulfides. Because this sulfur is not there as atomic sulfur, it does not affect the ordinary copper strip corrosion test and its presence is often not guessed, although it is extremely harmful to oc-

†Full text of discussion now available in U. O. P. Booklet No. 242 entitled "The Plumbite Sweetening of Gasoline."

*Universal Oil Products Co.

A Typical 4-unit Petreco Electromatic De-Salting Plant





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tane rating and inhibitor susceptibility. Polysulfide formation can be reduced,

(1) By careful control at all times, of the amount of sulfur added. This is facilitated by use of an accurately controllable sulfur valve, and tests for excess sulfur made by the treater during operation of the plant with mercury or butyl mercaptan.

(2) By adding the sulfur after the doctor solution and gasoline have been thoroughly mixed, and providing adequate mixing following sulfur addition, to speed up the break and promote settling of lead sulfide. Proper mixing, in most gasolines, allows excess sulfur to be kept to .001-.002%. In an average gasoline, .01% excess sulfur may cause an octane loss of a full number.

(3) By treating at a temperature above 80°F. which accelerates the break and aids settling.

(4) By providing adequate settling.

(5) When mixing and settling alone will not give a clear gasoline, by providing a second contact with doctor solution or caustic (no more sulfur), further settling and a sand filter or a water wash to remove the last traces of haze from the gasoline.

If these precautions are observed, and minimum sulfur used in sweetening, the octane loss can in nearly every case be reduced to from .2 to .5 number depending upon the sourness of the gasoline.

Inhibitor Susceptibility

The third deficiency is the fact that when the gasoline is doctor sweetened it is often made very unresponsive to inhibitors. This has been demonstrated to be due also to polysulfides, probably those containing a high proportion of sulfur.

Comparisons, they say, are odious, and in no case more so than when one tries to make a single comparison of sweetening processes hold for all gasolines. I think there is no question but that each of the current processes has its place in the sweetening field. This definitely includes the doctor process, for there are gasolines which no other process appears to be able to handle as satisfactorily. To make a simple comparison of processes, it may be said that in doctor sweetening, as carried out under best conditions, there may be slightly greater octane loss, slightly larger loss of gasoline, and if the gasoline is water-white, slightly greater tendency to haze in sunlight than when gasoline is sweetened by copper processes, also flawlessly operated. The chemical cost of proper doctor sweetening should be no greater than that of any other process. The lead susceptibility will be practically identical with that of gasoline sweetened by other methods nor will there be any lower inhibitor susceptibility.

Before closing, I would like to make a clear distinction between all sweetening processes, and processes which actually bring about mercaptan removal. Either mercaptans or disulfides are reported to impair lead susceptibility. Doctor sweetening removes neither but is simply a process of converting one to the other. Processes which actually take out mercaptans, such as caustic washing with regeneration, use of solutizers, or high temperature treatment with bauxite or other catalysts, will actually increase lead susceptibility. They often cost more than sweetening, but the present acceleration of the octane race makes more and more valuable even slight gains in lead susceptibility and necessitates a re-evaluation of refining processes, because the higher the octane number which must be obtained the more application will there be for processes of mercaptan removal, producing either complete sweetening or partial mercaptan elimination with the subsequent use of a sweetening process.

The doctor process, despite its years, has shown after a scientific rejuvenation that "there is life in the old boy yet." It has been clearly demonstrated that the so-called fundamental deficiencies in the process, high cost, octane loss, and reduction of inhibitor susceptibility, can be minimized or eliminated. The tendency to revamp and improve doctor plants, and sometimes to build new ones, has paralleled the introduction of the newer processes.

★ ★ ★

Conventional Doctor Treating Adequate with Careful Control

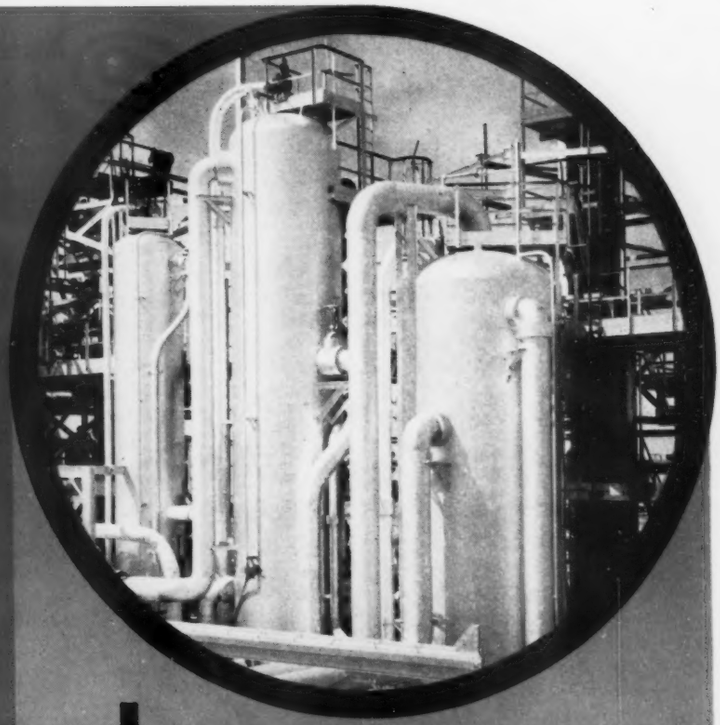
Discussion by Paul W. Emery*

WE BELIEVE that by the conventional sodium plumbite or doctor treatment of gasoline it is possible to obtain satisfactory results and produce a finished gasoline which is superior to gasoline sweetened by other methods. A much pleasanter odor can be obtained by doctor treating and it is possible to eliminate any possibility of contamination of the finished gasoline by the chemicals used in treating. However, in order to obtain these results it is necessary to exercise a very careful control of the treating plant at all times. By this control the gasoline loss can be held at a minimum, the loss of octane rating can be held at a negligible figure and the lead susceptibility improved. Careful control will also maintain a maximum of inhibitor susceptibility. The overall results of such control allows us to operate such a sweetening plant at a very low cost.

The chemical control of the treating process can be set up in such a manner that the treaters themselves can carry out the necessary tests for determining the strength of their doctor solution in terms of available lead oxide and sodium hydroxide content. In our work the operators check these tests frequently on the doctor solution both during treatment and during its regeneration. The operators are also capable of determining the mercaptan content of the gasolines that they are treating and in this way can calculate the expected life of each batch. The corrosion of the finished gasoline is also controlled within very close limits at the treating plant by means of the butyl mercaptan test.

The flow through our doctor treating plant is controlled by means of flow-meters on the charge pumps, whereby we proportion the percent of cracked and straight run gasoline or polymer gasoline that we desire to treat. This blend is then contacted with the doctor solution and passes through two Duriron mixers in series with each other. From these mixers it passes through a section of five vertical pipes about 8 feet long. Each of these pipes contain baffles which cover about two-thirds of the area of the pipe and are spaced every two feet. Therefore, we obtain a very thorough mixing through Duriron mixers and follow this with an extended contact time through the vertical pipes. At this point a small proportion of the gasoline which has been by-passed through a sulfur pot is introduced and the mixture passes through a zig-zag mixing arrangement made up with tees, nipples, and bull plugs. From here we pass the mixture into the doctor settling drum. We have found that introducing the sulfur at this point and allowing time for mixing and contacting, we obtain very sensitive control and are able to get a good break of the doctor solution from the gasoline and avoid

*United Refining Co., Warren, Pa.



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excess sulfur in the treated gasoline. The treated gasoline is then water washed after which it passes through a sand filter and then into the run down tanks of the treating plant. The doctor solution is tested regularly for the available lead oxide and is removed from the system when it shows between two and three pounds of lead oxide per barrel.

Regeneration Curve Studies

If one studies the curve of the regenerating time of the doctor solution they will find that when the doctor solution is allowed to remain in the system until it contains from ½ to 1 pound of lead oxide per barrel; 48 hours of regeneration of this solution can be expected to show only 5 to 6 pounds of lead oxide available. However, by removing the doctor batch before it drops below 2 pound lead oxide it is possible to completely regenerate the batch in 8 to 10 hours and bring the batch back to its original condition of 12 to 13 pounds of lead oxide per barrel. In following this plan we find that it is seldom necessary to add fresh lead oxide. However, if the strength of the doctor batch does drop below 12 pounds, sufficient lead oxide is added to maintain this condition. The regeneration is carried out very economically by circulating the spent doctor solution at 200 gallons per minute through a Vogt regenerator. This regenerator aerates or oxidizes the doctor solution by pumping the material into a reservoir over the regenerating pan and as the doctor solution drops through a central pipe air is drawn in through surrounding tubes and is mixed with the doctor solution.

By means of this unit we have been able to cut our doctor regenerating time down to almost a third of that required when blowing with air by means of a spider in the bottom of the tank. This unit also enables us to regenerate at a higher temperature or approximately 190° F.

We are continually studying the results and cost of our doctor treating system and now feel that by inserting a caustic wash ahead of the doctor treating plant we will not only be able to produce a higher quality finished gasoline but also reduce still further the costs of sweetening.

* * *

Rule-of-Thumb Methods Out

Discussion by G. G. Rumberger*

Mr. Robinson has given us a very complete discussion of the problems of sweetening gasoline. It is particularly interesting to note that stress has been laid on the necessity of laboratory control of the processes involved in sweetening, and that it is being more and more recognized that there is a purely chemical operation which deserves the co-operation of the chemist and the plant operator. Mr. Emery has subscribed to this plan of operation, and I think that all will agree that the time has come for the rule-of-thumb methods of sweetening to disappear.

Mr. Robinson has touched on solutizer sweetening. This is a recent development which I think deserves close scrutiny, as the inventors of the method claim to be able to remove mercaptans as such, instead of oxidizing them to disulfides as is the practice with chemical methods now in use. There is every indication, from work done by various investigators, that if the sulfur can be totally removed from a gasoline the octane degradation and lead response will be improved and in some cases the odor improved remarkably. It seems to me that the cost of potassium isobutyrate as a solutizer would be prohibitive if any great amount were lost from the system.

I think we have all had plenty of experience with blackstrap. Sometime ago we were disposing of a blackstrap which insisted upon accumulating on the bottoms of the tanks, but we found that this material may be made soluble in caustic if it is burned in open pans sufficiently to remove the organic material it may contain. Of course this method is crude but it does result in a considerable saving if the disposition of blackstrap is a very great problem.

*Quaker State Oil Refining Corp.

Petroleum Chemists to Recount Auto Industry Contributions

Twelve reports ranging from "Future Needs in Fuel and Oil in Motor Transport" to "The Relation of Asphalt Road Construction to the Automotive Industry" will be presented during a symposium of the Petroleum Division of the American Chemical Society featuring petroleum chemistry's contribution of the automotive industry, Sept. 10, during the 100th meeting of the A. C. S. in Detroit.

Dr. Merrill R. Fenske, Pennsylvania State College, will preside. The paper on asphalt roads' contribution to car operation has been prepared by E. W. Klinger, A. Holmes, and R. F. Phillips, Standard Oil Development Co. A method of studying the oxidation of asphalt will be described by R. R. Thurston and E. C. Knowles, The Texas Co.

Dr. T. A. Boyd, General Motors Corp., will discuss future needs in fuel and oil for motor transport. A correlation of the molecular structure of gasoline with octane rating will be attempted by Dr. Gustav Egloff and P. M. Van Arsdell, Universal Oil Products Co. The results of an analysis of three samples of refinery cracked naphthas, representing the products of thermal cracking and polymerization processes, will be presented by R. E. Tannich, B. W. Thomas, and A. R. Padgett, Humble Oil & Refining Co.

S. D. Heron, Harold A. Beatty, and Charles W. Sortman, Ethyl Gasoline Corp., will report the determination of spontaneous ignition temperatures in air for a variety of hydrocarbons. A group of papers will deal with lubricants. Dr. Fenske and R. E. Hersh, Pennsylvania State College, will suggest methods for segregation of any portion of a lubricating oil distillate. L. L. Davis, Bert H. Lincoln, G. D. Byrkit, and W. A. Jones, Continental Oil Co., have a paper on oxidation of lubricants. Wear prevention agents will be described by Otto Beeck, J. W. Givens, A. E. Smith, and E. C. Williams, Shell Development Co.

The widespread use of synthetic addition agents for lubricants will be reviewed by Dr. F. L. Miller, W. C. Winning, and J. F. Kunc, Standard Oil Development Co. Further on addition agents will be presented by O. M. Reiff, Socony-Vacuum Oil Co., who will describe new types of metal organic agents from alkylated phenolic compounds. The variety of individual uses of emulsifying agents, fatty oils, extreme pressure agents, inhibitors, and other similar materials will be covered by J. C. Zimmer and E. W. Carlson, Standard Oil Development Co.

Speakers at the general meeting of the Petroleum Division and their topics are as follows:

W. J. Sweeney and E. H. McArdle, Standard Oil Development Co., "Highly Aromatic Petroleum Solvent Naphthas"; Dr. Fenske, C. E. Stevenson, R. A. Rusk, N. D. Lawson, M. R. Cannon, Glenn Herbolsheimer, and E. F. Koch, Pennsylvania State College, "Oxidation of Lubricating Oils"; A. W. Burwell and J. A. Camelford, Alox Corp., "Some Effect of Chemical Composition on Lubricants Operating in the Region of Boundary Lubrication"; W. A. Lutz, Gulf Research and Development Co., "Effect of Temperature on the Consistency of Lubricating Greases"; Edwin R. Littmann and J. R. M. Klotz, Stanco, Inc., "Manufacture, Properties, and Uses of Naphthenic Acids"; S. W. Ferris, Atlantic Refining Co., "Petroleum Equilibria."

M. R. Lipkin and S. S. Kurtz, Jr., Sun Oil Co., "The Number of Carbon Atoms in Naphthene Rings Calculated from Density"; W. F. Seyer and B. R. Mead, University of British Columbia, "The Specific Heats of Liquid Cis and Trans Decahydronaphthalene"; Maurice L. Huggins, Eastman Kodak Co., "Densities and Refractive Indices of Liquid Paraffin Hydrocarbons"; Cecil E. Boord and Albert L. Henne, Ohio State University, "The Preparation of Pure Octanes"; Gilbert E. Goheen, Sun Oil Co., "Synthesis of Polycyclopentylcyclopentanes"; M. S. Agruss, George W. Ayers, Jr., H. Schindler, Pure Oil Co., "Detection, Determination, and Identification of Organic Halogen Compounds in Mineral Oils"; Karl Uhrig and Harry Levin, The Texas Co., "Determination of Bromine Addition Number."

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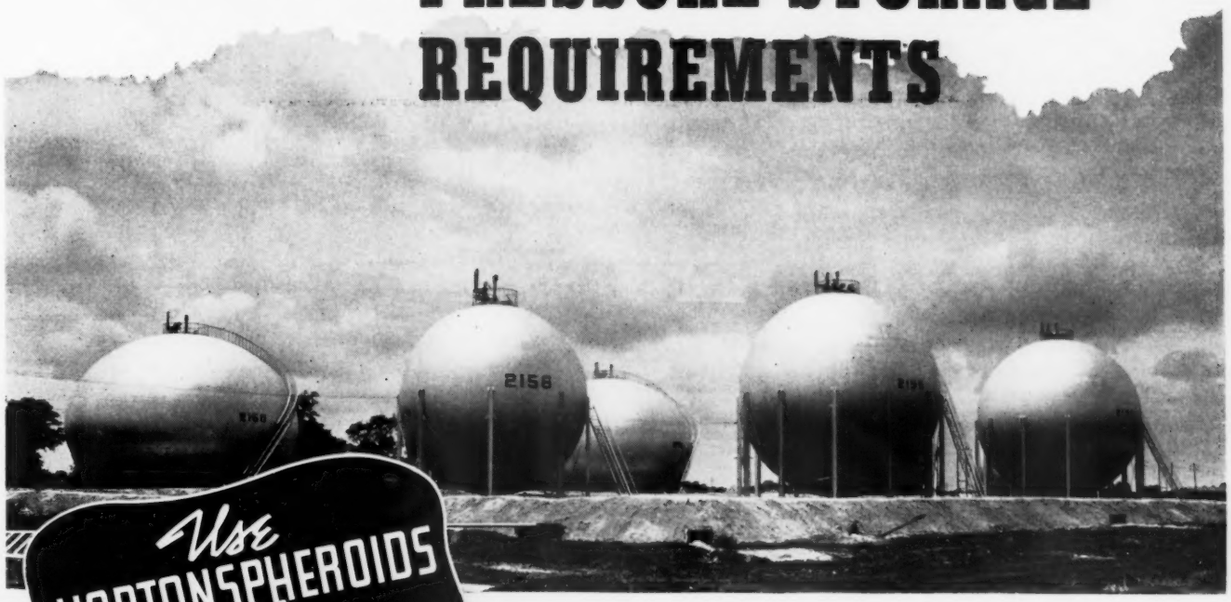

The accompanying illustrations are typical views of a group of pressure storage tanks at a Texas refinery. Included are five Hortonspheroids, four of which have a capacity of 25,000 bbls. each, the fifth being a 100,000-bbl. unit. Two 15,000 bbl. and one 5,000-bbl. Hortonspheres are also shown.

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ADVERTISING PAGES REMOVED

High-Temperature Creep Strength Checked for Low-Alloy Steels

By R. F. Miller,[1] W. G. Benz,[1] and W. E. Unverzagt[2]

A condensation of a paper presented at the annual meeting of the American Society for Testing Materials at Atlantic City, June 24-28.

ABSTRACT

The creep strengths of 17 low-alloy steels of variable composition and heat treatment were determined at 1000° F. to show the effects of these variables. Three groups of steels, all used in fabrication of still tubes, were included in the tests. These were carbon-moly steels with varying Mo and Mn contents, 1.25-3.25% chrome steels with varying contents of Mo, Si, and Al, and 5% chrome steels with varying contents of Mo, Si, Al, Ti, and Cb.

Conservative estimates of creep strength should be based on materials having a stable structure. In general the steels with the highest creep strength have least stability. Addition of chromium tends to lower creep strength and increase stability of carbon-molybdenum steel but lowered creep strength can be partially offset by increasing the molybdenum content. Titanium or columbium improves the creep strength of chromium-molybdenum steels, but silicon and aluminum affect their creep strength adversely.

THREE years ago, examination of the data for low-alloy steels in commercial use between 800° and 1100° F. revealed considerable differences in the reported creep strength of these steels. These discrepancies not only were a source of perplexity to engineers, but rendered uncertain any deductions as to the effect of an alloying element on creep strength. We considered it expedient, therefore, to redetermine the creep strength of some of these steels.

Since in general the relative order of creep strength of the low-alloy steels remains the same from 800° to 1100° F., it appeared that a broader picture of the influence of change of composition and heat treatment could be obtained in the same length of time by studying a wider variety of steels at a single temperature than by being restricted to a smaller number of steels at a seris of temperatures. Accordingly, a temperature of 1000° F. was chosen for the comparison. Stresses of 10,000 and 15,000 psi. were selected because the available data indicated that they approximate the creep strength (stress corresponding to a creep rate of 0.000001 inch per inch per hour, or 1% per 10,000 hour) of these steels.

The results of this investigation, which are summarized in Table 4, show closer agreement with the data published during the past year than had been anticipated. There are several reasons for this. One is the composition of the steels themselves is becoming more standardized.

Composition of Steels

The composition of the 17 steels used in this investigation is given in Table 1. Thirteen of the 17 steels are standard compositions now in commercial use; four (steels A3, A4, C2, and C6) are of modified composition, included to show the effect of variation of the molybdenum content and of the addition of columbium. For comparative purposes, the steels have been divided into three groups.

Group A: Carbon-molybdenum steels, with varying molybdenum and manganese content.

Group B: 1.25 to 3.25% chromium steels, with additions of molybdenum, silicon, and aluminum.

Group C: 5% chromium steels, with additions of molybdenum, silicon, aluminum, titanium, and columbium.

Table 1.—Composition of Steel

Steel	Carbon, per cent	Manganese, per cent	Phosphorus, per cent	Sulfur, per cent	Silicon, per cent	Chromium, per cent	Molybdenum, per cent	Other Elements per cent
Group A								
A1	0.15	0.46	0.006	0.023	0.14	...	0.56	
A2	0.16	0.43	0.015	0.013	0.16	...	1.10	
A3	0.21	0.38	0.017	0.025	0.03	...	1.36	
A4	0.13	0.33	0.014	0.022	0.01	...	1.95	
A5	0.21	0.86	0.016	0.026	0.13	...	0.58	
Group B								
B1	0.12	0.47	0.008	0.007	0.22	2.06	0.50	
B2	0.10	0.34	0.012	0.007	0.12	2.26	1.06	
B3	0.14	0.43	0.011	0.008	0.84	1.25	0.54	
B4	0.17	0.52	0.012	0.014	0.57	1.78	0.78	
B5	0.12	0.48	0.010	0.011	1.57	3.26	0.54	
B6	0.08	0.32	0.010	0.011	1.43	3.02	0.54	Al 0.56
Group C								
C1	0.13	0.36	0.017	0.007	0.44	5.48	0.50	
C2	0.13	0.56	0.008	0.017	0.38	5.66	0.98	
C3	0.13	0.26	0.011	0.010	1.57	5.25	0.50	
C4	0.07	0.28	0.010	0.017	1.28	5.96	0.55	Al 0.58
C5	0.05	0.34	0.010	0.008	0.39	5.20	0.58	Ti 0.47
C6	0.09	0.42	0.012	0.011	0.35	5.00	0.55	Cb 0.59

Heat Treatment

The heat treatment employed for each of these steels is shown in Table 2. Because of the wide variation of composition, it was impossible to use the identical heat treatment throughout. For example, normalizing may be used for carbon-molybdenum steels without undue air hardening, but it will produce a marked increase in the hardness of chromium-molybdenum steels. Suitable heat treatments, representative of commercial practice, were therefore selected. The material was heat treated in the form of 1-inch rounds; after heat treatment, coupons were cut from the ends of the 8-inch bars for determination of microstructure, and the remainder was machined to form the creep specimen.

In order to study further the effect of different heat treatments on creep strength, discussed in a previous paper[4], two separate heat treatments were employed for group A and for certain of the steels of groups B and C.

Creep Strength at 1000 F.

The creep testing apparatus employed in these tests has been described in previous publications.[4,6] During the course of this testing program, an improved creep measuring microscope was developed and installed. The stress employed for each individual specimen, the duration

[1] Research Laboratory, U. S. Steel Corp., Kearny, N. J.
[2] Metallographist, National Works, National Tube Co., McKeesport, Pa.

[4] R. F. Miller, R. F. Campbell, R. H. Aborn and E. C. Wright, "Influence of Heat Treatment on Creep of Carbon-Molybdenum and Chromium-Molybdenum-Silicon Steel," *Transactions*. Am. Soc. Metals, Vol. 26, p. 81 (1938).

[6] Richard F. Miller, "The Strength of Metals at Elevated Temperatures," *Mechanical Engineering*, Vol. 61, No. 8, August, 1939, p. 589.

Table 2.—Heat Treatments

Steel	Specimen	Heat Treatment
Group A		
A1-A4	a and b	Normalize 1650 F., 0.5 hr., air cool
A1-A4	c and d	Normalize 1650 F., 0.5 hr., air cool; temper 1300 F., 5 hr., air cool
A5	a and b	Normalize 1650 F., 0.5 hr., air cool; temper 1300 F., 5 hr., air cool
Group B		
B1	a and b	Normalize 1650 F., 1 hr., air cool; temper 1380 F., 4 hr., furnace cool
B2	a and b	Normalize 1650 F., 1 hr., air cool; temper 1380 F., 4 hr., furnace cool
B3	a	Anneal 1550 F., 1 hr., furnace cool
B3	b, c and d	Normalize 1650 F., 1 hr., air cool; temper 1380 F., 4 hr., furnace cool
B4	a and b	Normalize 1750 F., 1.5 hr., air cool; temper 1375 F., 2 hr., furnace cool
B5	a, b and c	Anneal 1600 F., 2 hr., furnace cool
B6	a, b and c	Normalize 1550 F., 3 hr., air cool
Group C		
C1	a and b	Anneal 1600 F., 2 hr., furnace cool
C1	c, d and e	Normalize 1600 F., 1 hr., air cool; temper 1380 F., 4 hr., air cool
C2	a and b	Normalize 1650 F., 0.5 hr., air cool; temper 1380 F., 4 hr., air cool
C3	a, b and c	Anneal 1600 F., 2 hr., furnace cool
C4	a, b and c	Normalize 1550 F., 3 hr., air cool
C5	a and b	Temper 1380 F., 4 hr., air cool
C6	a, b and c	Temper 1380 F., 4 hr., air cool
C6	d	Anneal 1600 F., 1 hr., furnace cool

of the test, and the creep rate during the last 1000 hours of each test are listed in Table 3. From these data, the creep strength (stress for a creep rate of 0.000001-inch per inch per hour) of each steel has been calculated as is shown in Table V.

The creep strength of the carbon-molybdenum steels increases with increasing molybdenum content, both in the normalized and in the normalized-and-tempered condition, as shown in Fig. 1. For each composition, the creep strength of the normalized material is higher than that of the normalized-and-tempered material. However, the normalized material is less stable than the normalized-and-tempered material, and the creep strength of both may become the same after a prolonged exposure to a temperature of 1000°F. Increase of carbon and manganese content appears to cause a slight increase in the creep strength of normalized-and-tempered carbon—0.5% molybdenum steel, as seen from a comparison of steels A1 and A5, Table 4.

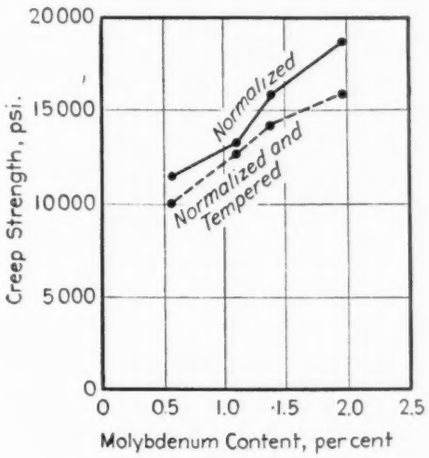

Fig. 1—Creep strength of carbon-molybdenum steels increases with increasing molybdenum content

Figure 2 shows graphically the effect on creep strength of change of composition of similarly heat-treated chromium-molybdenum steels. The creep strength of normalized-and-tempered steel containing 2 or 5% chromium is enhanced by raising the molybdenum content from 0.5 to 1%; but it is lowered by raising the chromium from 2 to 5%. A similar lowering is observed when the chromium content of normalized chromium-molybdenum-silicon-aluminum steel is raised from 3 to 5%. On the other hand, increase of chromium from 3 to 5% resulted in little change of the creep strength of annealed steel containing 0.5% molybdenum and 1.5% silicon.

Steels B3 and B4 both contain chromium, molybdenum, and silicon, were similarly heat treated, and have a similar grain size. The slightly higher alloy content of B4 results in a considerably more creep-resistant material. A possible reason for this enhanced creep strength is that this small change in composition markedly increases the air-hardening propensities of this type of material; in other words, the normalizing and tempering heat treatment yields a different microstructure in the two steels. In steel B4, the carbide particles are found to be fine and

TABLE 3—Test Data, 1000 F. Creep Tests

Creep data for individual time intervals, or other data not included in this table, will be supplied on request by the Research Laboratory of the U. S. Steel Corp.

Type of Steel	Specimen	Creep Stress, psi.	Duration of Creep Test, hr.	Creep Rate During Last 1000 hr., 0.000001 in. per inch per hour	Brinell Hardness		Modified Charpy Impact Strength, ft.-lb.*	
					Before Creep Test	After Creep Test	Before Creep Test	After Creep Test
Group A								
A1	a	15,000	5,000	5.16	131	134	39	34
	b	10,000	3,200	0.52	131	134	39	38.5
	c	15,000	3,100	17.1	116	128	40	37
	d	10,000	3,000	1.02	116	114	40	40
A2	a	15,000	4,150	1.65	146	179	39	33.5
	b	10,000	3,100	0.43	146	174	39	38.5
	c	15,000	2,900	2.13	143	137	42	42
	d	10,000	3,300	0.39	143	140	42	41
A3	a	15,000	3,000	0.88	167	197	26.5	24.5
	b	10,000	3,000	0.36	167	201	26.5	25
	c	15,000	3,000	1.17	163	163	29	31.5
	d	10,000	2,000	0.52	163	174	29	32.5
A4	a	15,000	3,000	0.47	152	212	42	18.5
	b	10,000	3,000	0.17	152	223	42	6
	c	15,000	3,000	0.78	173	167	38	38.5
	d	10,000	2,000	0.22	173	163	38	39
A5	a	15,000	3,000	2.34	152	156	38	36
	b	10,000	2,400	0.56	152	152	38	33
Group B								
B1	a	15,000	1,900	8.8	141	131	49	45
	b	10,000	3,000	1.04	141	134	49	45
B2	a	15,000	3,000	1.47	159	167	46	44
	b	10,000	3,000	0.54	159	163	46	42.5
B3	a	22,000	2,100	24.2	156	159	41.5	21
	b	15,000	1,300	33.6	146	...	36	..
	c	10,000	3,000	3.8	146	152	36	33
	d	7,000	2,300	0.59	146	137	36	35
B4	a	15,000	3,000	2.9	181	163	40.5	27
	b	10,000	3,000	0.71	181	179	40.5	26
B5	a	15,000	800†	87.6	170	170	31	26
	b	10,000	3,000	4.12	170	170	31	20
	c	7,500	3,000	0.67	170	167	31	16.5
B6	a	15,000	200†	98.1	163	159	21 (2)	27.5
	b	10,000	1,000†	5.7	163	170	21 (2)	26.5
	c	6,500	3,000	0.4	163	156	21 (2)	25.5 (1.5)
Group C								
C1	a	15,000	200†	94.0	136	134	38	31.5
	b	10,000	2,000	2.0	136	146	38	31.5
	c	15,000	1,000†	13.9	191	174	50	45
	d	10,000	3,000	3.56	191	172	50	43
	e	7,000	3,000	1.19	191	179	50	43
C2	a	15,000	1,000†	7.9	202	174	39	33
	b	10,000	2,200	0.72	202	212	39	35
C3	a	15,000	500†	84.3	170	170	38	35.5
	b	10,000	2,200	4.56	170	167	38	23.5
	c	7,500	3,000	0.30	170	170	38	28
C4	a	15,000	200†	163	154	163	51	46.5
	b	10,000	1,700	18.8	154	149	51	40 (1.5)
	c	5,500	2,200	1.2	154	152	51	41
C5	a	15,000	1,500	32.3	149	134	52	44
	b	10,000	2,200	0.2	149	126	52	43
C6	a	15,000	2,000	0.28	169	156	49	36
	b	10,000	2,000	0.28	169	149	49	43
	c	20,000	1,500	12.8	169	163	49	47.5
	d	15,000	900	41.7	140	140	46.5	38

*Values are averages of two tests. When results are in wide disagreement the second test value is indicated in parenthesis.

†The creep rate exceeded the capacity of the apparatus; other tests were run for longer times under lower stresses to supply data necessary for determination of stress for desired creep rate.

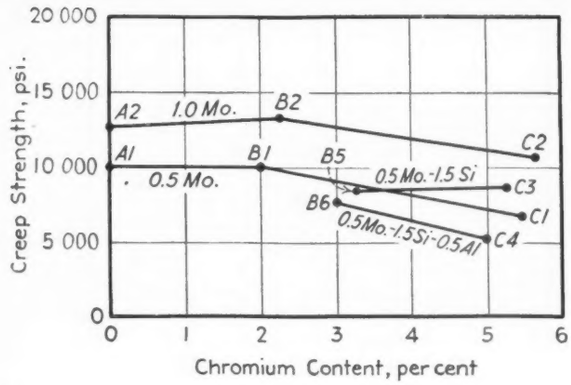

Fig. 2—Effect of increased chromium content of chrome-molybdenum steels over 2% is to lower creep strength

uniformly distributed, while in steel B3 they have coalesced at the grain boundaries where they are presumably less effective in strengthening the material.

The creep strength of steel B3 was found to be 7800 psi. at 1000° F., considerably lower than that, 22,000 psi., reported by another laboratory. Consequently, a sample of steel B3 was heat treated (annealed) in the manner reported to have been employed in obtaining the higher creep strength, and this sample was tested at a stress of 22,000 psi. The creep rate during the last 1000 hours of this test was 0.000024-inches per inch per hour, a rate so rapid that the lower value was confirmed as being a safer estimate of its creep strength.

Remarkably good results were obtained with steels C5 and C6 in the hot-rolled and tempered condition. Steel C5 shows a creep strength of 11,500 psi. as compared to 6600 psi. for the same steel (C1) in the normalized-and-tempered condition without titanium. Steel C6 has a creep strength of 16,400 psi., the best of any steel tested except the normalized carbon-molybdenum steel A4, which has a creep strength of 18,800 psi. The creep rate under a stress of 15,000 psi. at 1000° F., of steel C6 in the annealed condition was observed to be 0.000042 inch per inch per hour, but in the hot-rolled and tempered condition to be only 0.00000028 inch per inch per hour; this is about 150 times less rapid. Although the creep strength of steel C6 is lower in the annealed than in the hot-rolled and tempered condition, it is still above that of the same steel without columbium. This is demonstrated by a comparison of the creep rates of steels C1 (without columbium) and C6 (with columbium) in the annealed condition under a stress of 15,000 psi. (0.000094 and 0.000042 inch per inch per hour, respectively).

In general it may be said that, excepting the titanium- and columbium-bearing steels, the creep strength of the steels in group C is somewhat lower than that of the steels in group B, while that of group B is somewhat lower than that of group A.

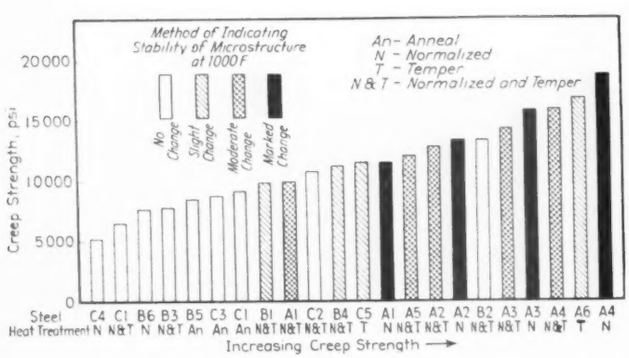
Method of Indicating Stability of Microstructure at 1000 F
No Change
Slight Change
Moderate Change
Marked Change
An- Anneal
N - Normalized
T - Temper
N & T - Normalized and Temper
20000
15000
10000
5000
0
Creep Strength, psi
Steel
Heat Treatment
C4 C1 B6 B3 B5 C3 C1 B1 A1 C2 B4 C5 A1 A5 A2 A2 B2 A3 A3 A4 A6 A4
N N&T N N&T An An An N&T N&T N&T N&T T N N&T N&T N N&T N&T N N&T T N
Increasing Creep Strength →

Fig. 3—Steels plotted in order of increasing creep strength show relative stability of microstructure during creep test at 1000° F.

Stability of Microstructure

The microstructure of all of the specimens was examined, both before and after creep testing, and the observations regarding the relative stability of the microstructures of these steels at 1000°F. are summarized in Fig. 3. The change of microstructure observed in a given steel with a given heat treatment seemed to be unaffected by the stress, and to depend solely on the duration of its sojourn at 1000°F.

The most pronounced change of microstructure was found in the normalized carbon-molybdenum steels of group A. There was a moderate change in the normalized-and-tempered carbon-molybdenum steels, and in the annealed steel B3. In the other chromium-molybdenum steels of groups B and C there was a very slight change, or no visible change at all. It is thought that the superior stability of the steels of groups B and C as compared to those in group A may be ascribed to the chromium content, because both in the pearlitic and in the spheroidized condition, additions of chromium increased the stability of the microstructure.

Structures that are unstable at 1000°F. may be so altered by heating for a few hours at about 1300°F. that they will remain essentially unchanged however long they are exposed to the lower temperature of 1000°F. In other words, the same amount of structural change may be brought about in a few hours at the higher temperature that would have taken thousands of hours at the lower testing temperature.

Creep Strength vs. Stability

Examination of Fig. 3 shows that in general the steels with the highest creep strength are the ones with the least stability. Also, that when two heat treatments are used for the same steel, the more stable structure has the lower creep strength. If the creep tests had been run long enough a 1000° F. to permit the same change of structure which was produced by the subcritical heating (tempering) before creep testing, it is probable that the high creep strength data would not have been obtained. In this case, even 3000 hours was not long enough to disclose the magnitude of the decrease of creep strength which would be encountered.

The design engineer would be well advised to inquire whether the microstructure of a steel he is considering for a given application is stable at the operating temperature, since the creep strength quoted for a given steel may represent a transitory condition and over a period of time the creep strength of the material may decrease considerably. Conservative estimates of the creep strength of a given material should be made on the basis of a structure known to be stable at the service temperature.

Impact Strength and Hardness

The impact strength of the steels, as determined before and after creep testing, is listed in Table 3. The only significant effect on impact strength which would be attributed to composition occurred in steels B6 and C4. No consistent trend in impact values could be attributed to differences in the heat treatment of individual steels. Exposure of the steels to a temperature of 1000°F. for 3000 hours caused little if any change in the impact strength of the carbon-molybdenum steels in group A. Steel A5 was an exception; in the normalized condition, the modified Charpy impact strength decreased from 42.0 ft.-lb. in the initial material to 18.5 and 6.0 ft.-lb. after creep testing under 15,000 and 10,000 psi., respectively. This may be associated with the corresponding increase in hardness from 152 Brinell to 212 and 223 Brinell. The chromium-molybdenum steels in groups B and C show a tendency toward lower impact strength after creep testing, and the decrease is more pronounced in the steels containing silicon.

The hardness of the normalized carbon-molybdenum steels (group A) increases with increasing molybdenum

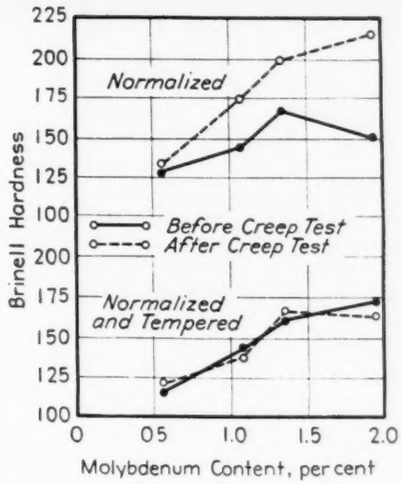

Fig. 4—A marked increase in the hardness of normalized carbon-molybdenum steels occurs during creep testing

content except in steel A4, which contains only 0.13% carbon. A marked increase in the hardness of these normalized carbon-molybdenum steels occurs during creep testing as shown graphically in Fig. 4. It will also be seen that the hardness of the normalized and tempered carbon-molybdenum steels increases with increasing molybdenum content, but that in this condition there is very little change after creep testing.

In the chromium-molybdenum steels, the only significant trend attributable to change of composition is that an increase of molybdenum content in steels containing 2 or 5% chromium results in an increase in hardness, both before and after creep testing. After exposure to the creep test at 1000° F., the chromium-molybdenum steels of

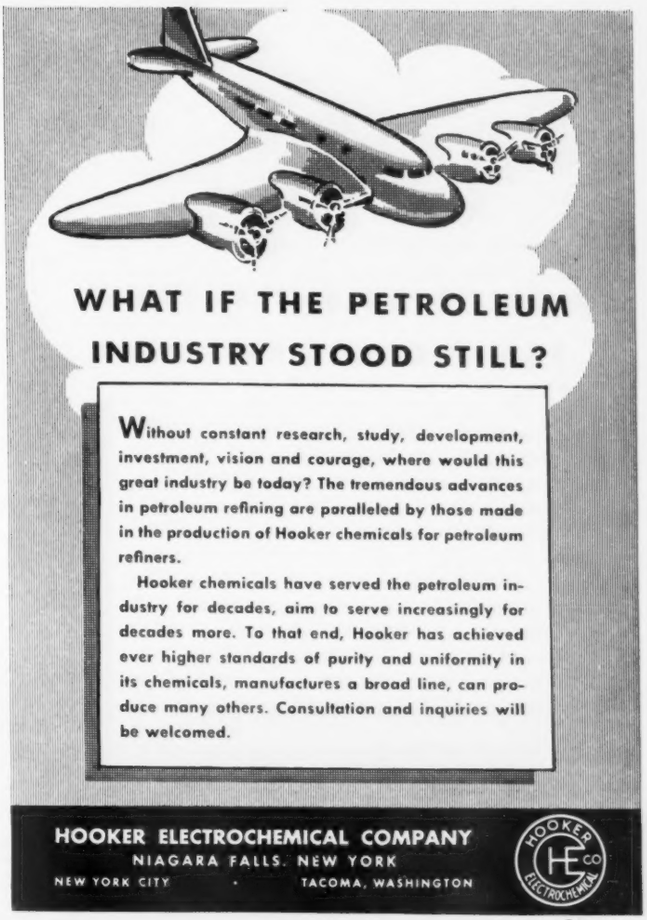
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TABLE 4—Creep Strength at 1000 F.

Code	Heat Treatment, deg. Fahr.	Stress for Creep Rate of 0.000001 in. per inch per hour, psi. Kearny	Other Laboratories
A1	1650 N	11,500	12,400 (B & W)
	1650 N 1300 T	10,000	10,800 (Timken)
A2	1650 N	13,300	11,600 (B & W)
	1650 N 1300 T	12,800	
A3	1650 N	15,800	
	1650 N 1300 T	14,300	
A4	1650 N	18,800 (extrapolated)	
	1650 N 1300 T	15,900	
A5	1650 N 1300 T	12,000	
B1	1650 N 1380 T	10,000	8,900 (Timken) 11,000 (B & W)
B2	1650 N 1380 T	13,300*	11,000 (Timken) 16,350 (B & W)
B3	1650 N 1380 T	7,800*	22,000 (Timken)
B4	1750 N 1375 T	11,300	
B5	1600 An	8,500*	8,700 (Timken)
B6	1550 N	7,800*	8,400 (Timken)
C1	1600 An	9,100*	9,200 (B & W) 10,100 (Timken) 9,725 (Climax)
	1600 N 1380 T	6,600*	
C2	1650 N 1380 T	10,800*	10,000 (Climax)
C3	1600 An	8,800*	8,700 (Timken)
C4	1550 N	5,200*	7,600 (Timken)
C5	1380 T	11,500	13,000 (B & W)
C6	1380 T	16,400	

*Stable structure.

groups B and C show either a slight decrease of hardness, or no change.

Summary

The creep strength (stress for a creep rate of 0.000001 inch per inch per hour) of the carbon-molybdenum steels increases with increasing molybdenum content, both in the normalized and in the normalized-and-tempered condition (Fig. 1). In each composition, the creep strength of the normalized material is higher than that of the normalized-and-tempered material. However, the pearlitic structure resulting from the normalizing treatment is unstable at 1000°F., and the lower creep strength of the more stable normalized and tempered materials represents a more conservative estimate of their creep strength. Increase of manganese and carbon content appears to increase slightly the creep strength of normalized-and-tempered carbon, 0.5% molybdenum steel.

The addition of chromium tends to lower the creep strength of carbon-molybdenum steels (Fig. 2). However, this decrease may be partially offset by increase in the molybdenum content. Chromium increases the stability of carbon-molybdenum steels. The steel having the highest creep strength and at the same time a stable microstructure is B2.

The creep strength of the chromium-molybdenum steels is affected adversely by the addition of silicon and aluminum. Addition of titanium or columbium to chromium-molybdenum steel improves its creep strength in the hot-rolled and tempered condition. However, a single test on the chromium-molybdenum-columbium steel in the annealed condition indicates that this improvement may depend on an initial heat treatment yielding a structure whose permanence is unknown.

A list of published values for the creep strength of some of the steels included in this program may be found in Table 4. The values agree in general with those found in the present investigation, except in the case of steel B3. The improvement in creep strength brought about in chromium-bearing steels by increase in the molybdenum content is confirmed by recent work of other investigators[1]. It is our conclusion that if the analyses of the steels alluded to in the published data were within the range given by the A. S. T. M. specifications, and if the heat treatment and grain size of the steels were known and reproducible, it would now be possible to correlate creep test data obtained in different laboratories within 2000 psi.

Acknowledgment:

The authors wish to express their appreciation for the assistance of R. F. Campbell, N. A. Mathews, and others of the staff of the Research Laboratory in Kearny, and to E. C. Wright and the National Tube Co. for providing the material and advice concerning the heat treatment of the steels.

[1] *The Moly Matrix*, Vol. 6, No. 7, July, 1939; Vol. 6, No. 9, September, 1939

New Patents

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, NW, Washington, D. C., from whom copies may be obtained at rate of 25c each. State number of patent and name of inventor when ordering.

July 16, 1940

Polymerization of hydrocarbon gases—T. A. Mangelsdorf and du Bois Eastman, assignors to Texas Co. Filed Dec. 8, 1936. No. 2,208,100.

Solvent refining of hydrocarbon oil—W. E. Skelton, assignor to Texas Co. Filed May 25, 1938. No. 2,208,108.

Processes for sweetening hydrocarbon oils—C. M. Blair, Jr., and I. S. Boydstun, assignors to Petrolite Corp., Ltd. Filed Oct. 28, Oct. 28, Nov. 3, Nov. 17, and Nov. 30, 1939. Nos. 2,208,505, 2,208,506, 2,208,507, 2,208,508, 2,208,509, and 2,208,510 (6 patents).

Process for separating hydrocarbon mixtures—Ernst Bosing, Germany, assignor to Edeleanu G.m.b.H. Filed Aug. 10, 1938. No. 2,208,534.

Stabilization of light hydrocarbon distillates—R. B. Rathbun, Sunburst, Mont., assignor to Texas Co. Filed Aug. 28, 1937. No. 2,208,105.

Lubricating compositions—C. F. Prutton, A. K. Smith, and H. E. Johnson, assignors to Lubri-Zol Development Corp. Filed Oct. 19, 1939, Feb. 12, Feb. 12, 1940. Nos. 2,208,161, 2,208,162, and 2,208,163 (3 patents).

Lubricating oil preparation—H. P. Lankelma, assignor to Standard Oil Co. (Ohio). Filed Sept. 4, 1936. No. 2,208,218.

Isomerization of hydrocarbons—W. F. Engel, Amsterdam, Netherlands, assignor to Shell Development Co. Filed Feb. 6, 1939. No. 2,208,362.

Motor fuel—Josef Jannek and William Hennicke, Germany, assignors to I. G. Farbenindustrie. Filed Sept. 11, 1937. No. 2,208,514.

* * *

July 23, 1940

Process and apparatus for fractional distillation—M. R. Fenske, assignor to Pennsylvania Research Corp. Filed Aug. 7, 1937. No. 2,208,573.

Process for refining petroleum distillates—E. E. Lyder, assignor to Standard Oil Co. (Calif.) Filed Oct. 11, 1937. No. 2,208,591.

Manufacture of gasoline and fuel oil—J. J. Downey, Los Angeles, assignor to Sinclair Refining Co. Filed June 15, 1937. No. 2,209,154.

Process for separating wax from wax-containing oils—W. W. N. Myer, Berlin, assignor to Standard Oil Development Co. Filed May 18, 1938. No. 2,209,168.

Manufacture of hydrocarbon products by hydrogenation of carbon oxides—W. E. Currie, assignor to Standard-I. G. Co. Filed Jan. 11, 1936. No. 2,209,190.

Lubricating oil—E. J. Martin and J. H. Kirk, assignors to Sinclair Refining Co. Filed Oct. 2, 1937. No. 2,209,165.

Process for preparation of oil solutions of organic sulphonates—L. A. Mikeska and G. E. Serniuk, assignors to Standard Oil Development Co. Filed Mar. 25, 1939. No. 2,209,169.

Motor fuel—T. B. McCulloch, and J. E. Pollock, assignors to Standard Oil Development Co. Filed Mar. 11, 1938. No. 2,209,204.

Production of butadiene—P. J. Gaylor and R. Rosen, assignors to Standard Oil Development Co. Filed July 15, 1936. No. 2,209,215.

* * *

July 30, 1940

Controlling reaction temperatures—J. W. McCausland, assignor to Universal Oil Products Co. Filed May 27, 1937. No. 2,209,346.

Process for producing hydrocarbons—F. E. Frey and H. J. Hepp, assignors to Phillips Petroleum Co. Filed Oct. 19, 1936. No. 2,209,450.

Separation and segregation of olefins—E. R. Gilliland, assignor to Standard Oil Development Co. Filed Dec. 29, 1938. No. 2,209,452.

Fractionating tower—D. L. Dodds, Galveston, Tex. Filed Sept. 6, 1938. No. 2,209,675.

Refining hydrocarbon oils—J. W. Weir, Los Angeles, assignor to Edeleanu G.m.b.H. Filed Nov. 22, 1938. No. 2,209,865.

Lubricant composition—E. W. Adams and G. M. McNulty, assignors to Standard Oil Co. (Ind.) Filed June 10, 1936. No. 2,209,440

Method and agent for breaking water-in-oil emulsions—B. S. de Mering, Houston, assignor to Standard Oil Development Co. Filed Apr. 20, 1938. No. 2,209,445.

Motor fuel—Llewellyn Heard and A. G. Oblad, assignors to Standard Oil Co. (Ind.) Filed Nov. 30, 1938. No. 2,209,458.

Process for producing synthetic oil—Eugene Lieber and M. M. Sadlon, assignors to Standard Oil Development Co. Filed July 24, 1937. No. 2,209,462.

Lubricant—C. M. Loane and B. H. Shoemaker, assignors to Standard Oil Co. (Ind.) Filed Nov. 2, 1936. No. 2,209,464.

Process for preparing catalysts—W. E. Spicer, Baton Rouge, assignor to Standard-I. G. Co. Filed Jan. 20, 1938. No. 2,209,492.

Steering gear lubricant—J. C. Zimmer and A. J. Morway, assignors to Standard Oil Development Co. Filed Feb. 10, 1937. No. 2,209,500.

Method of preventing formation of gum-like products in oils—A. C. G. Egerton, London. Filed June 29, 1938. No. 2,209,646.

Transformer Oil Substitute

Use of non-combustible cooling liquid for transformers is recognized in the newly revised fifth edition of the National Electrical Safety Code which deals with safety rules for installation and maintenance of electric supply stations. While the current revision shows numerous changes in the detailed wording of the rules, very few changes in substance have been made. Non-combustible cooling liquid is described as one of the new developments in the art.

A place for everything, and everything in its place, is the immediate reaction to the lubrication department of the Bush-Morgan Motors Co. at Pasadena, Calif., shown above. This is another example of how car dealers are attracting lubrication dollar of the motorist

MERCHANDISING AND MODERNIZATION

Hold Service Profit for Car Dealers

Car manufacturers are spurring car dealers to new efforts in selling lubrication. They are thinking out new ways for bringing the car owner back to the car dealer for periodic servicing. What is being done is discussed here because it directly affects the business of oil industry service stations and because it is thought the emphasis placed by the auto trade on lubricating merchandising methods will contain ideas which every oil marketing man can use.

Many an aggressive car dealer is pushing the slogan of "Lubricate Every 1,000 Miles." (First article on Car Dealers' service efforts published in N.P.N., July 24, 1940, page 30.)

PACED by merchandising programs developed by automobile manufacturers and some oil companies, car dealers are giving the oil service station stiffer competition in 1940 for the motorist's lubrication and accessory dollar than ever before.

The fact that the car dealer is getting a larger slice of the service dollar is borne out by figures from surveys of 400 average car dealers made by the National Automobile Dealers Assn. These show that the income of car agencies from their service departments in 1939 was over 30% greater than it was in 1937. The increase in car and truck registrations during the same period was less than 5%.

Another significant fact brought out by the association's surveys is that service departments contributed nearly 40% of the entire gross profit, from car agencies reporting in 1939. Profits from car servicing in 1937, accounted for only 28.7% of reporting dealers gross income.

These figures show that car dealers are not sitting idly by while the profits from servicing the product they sell seeks out the oil company stations. The oil filling station, more than ever before, will have to SELL service and accessories to the motorist, using every means at its command, to meet the challenge of car agencies.

The various reasons why car dealers have been able to show the improvement in income from their service departments in the last several years can be lumped into one word—MERCHANDISING.

In merchandising car servicing, the average dealer features well-euipped, attractive, departmentalized service rooms; pre-selling of lubrication and oil drains; seasonal drives; intelligent display, and effective and thorough follow-through.

It would be misleading, however, to state that all dealer service rooms have taken advantage of the merchandising programs developed by manufacturers. Some of them haven't. The majority of them, however, have made an intelligent approach to the service market through complete and sound merchandising programs.

No longer are the dealers' service departments relegated to the darkest corner of the "garage." No longer do grease-covered attendants slide under the car on a "dolly" to service it.

No! In fact, the service department of the average automobile agency carries through the lesson which the dealer has learned "in front of the shop." Appearance, which the dealer found so necessary in merchandising new cars has been found just as necessary in selling service to the car owner.

THE importance of showmanship with modern lubrication and servicing equipment is emphasized by dealers and zone service managers of car manufacturers. Dealers' service departments and equipment are generally located where the customer cannot miss seeing, and being impressed, with the station's ability to provide his service needs.

The appearance presented by the modern equipment of the dealer is accentuated by colorful and attractive backdrops to hide bare walls. Generally a one color combination is carried out through all service departments. Well-painted floors, with guide lines and directional arrows, clean uniformed attendants with a friendly, intelligent approach, as well as departmentalized services, are all aimed at carrying through one of the fundamentals of merchandising—Impressing the Customer.

That, briefly, is the picture of the

service department of the car dealer of today. That is the picture of the physical assets which the dealer carries into the fight for the car lubrication and accessory dollar.

Car dealers are not overlooking the fact that modernity begets business, and are taking every opportunity to add still newer equipment; new programs of customer solicitation; new and effective displays.

The zone manager of one car manufacturer, who recommends that dealers put aside 5% of the income from their service departments to purchase new service equipment, reports that many car dealers are using this means of defeating obsolescence. Out-of-date equipment, this service manager points out, can, in a few years, relegate the well-equipped station back into the category of second-class service shops.

THE oil filling station faces not only the physical assets of the car dealer in the battle for lubrication and accessory profits, but also a well-rounded merchandising program, which includes the pre-selling of lubrication and oil drains when the car is purchased

One Oldsmobile dealer in Cleveland who has been giving 50 free lube jobs to new car purchasers who must also buy their oil drains and all other lubrication services from the dealer, reports that only about 10% of the new car purchasers have failed to return for this "free" service. Most of these the dealer adds, are too far from his service department to conveniently trade there.

A Chevrolet dealer who pre-sells chassis lubrication at 6 jobs for $3.90 reports that more than 25% of the customers who have purchased cars through this agency in the past 2 or 3 years return for regular lubrication work and oil drains.

A Buick dealer, who sells coupon books good for 6 lube jobs and a wheel pack for $4.25, also sells each succeeding book at 50c less to keep his customers coming back, and to keep them pre-sold.

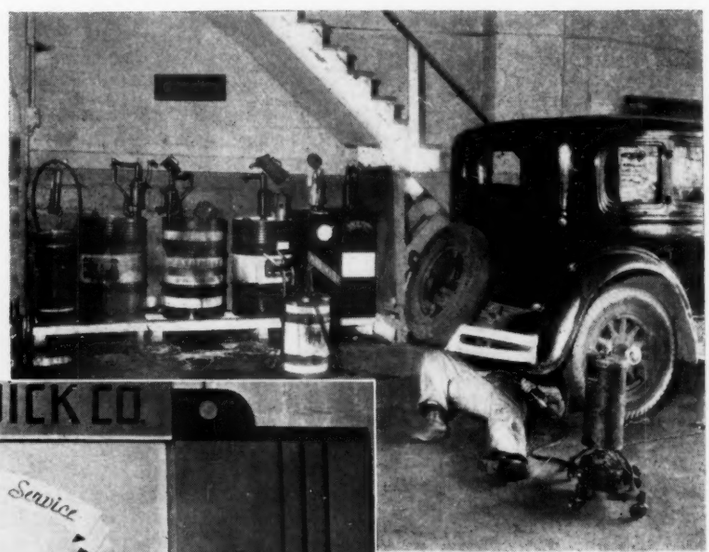
Service manager of this dealer points out that the first coupon book will last for 6000 miles; the second, sold at $3.75, until the car reaches the 12,000 mile mark, and the third book, at $3.25, until the car reaches 18,000 miles. "That's the time we have a chance either to sell them a new car or some real profitable service," remarks the service manager. He adds that the agency has an excellent opportunity to sell tires, batteries, spark plugs, shock absorbers, and all other accessories which might need replacement during the 18,000-mile driving period.

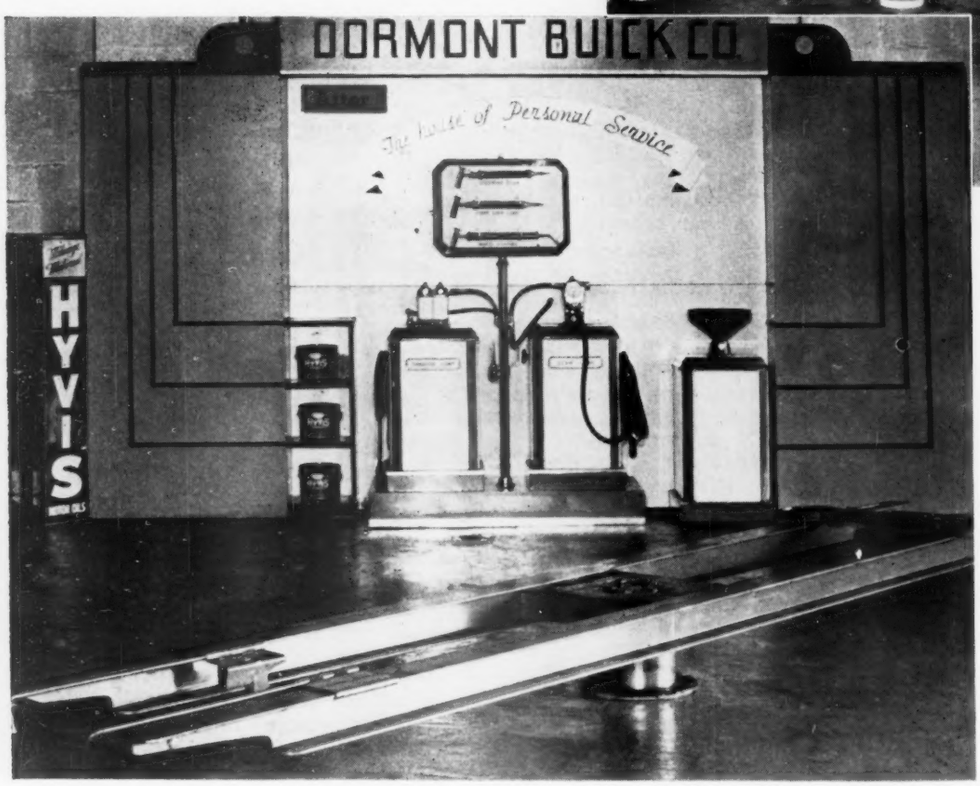
Two Cadillac dealers report that about 30 to 35% of their customers are purchasers of the nation-wide Cadillac-La Salle Lubrication Plan. Under this plan, Cadillac pre-sells 12,000 miles of complete lubrication, including chassis, oil drains, differential and transmission, wheel packs, etc. through coupon books which are good at any Cadillac agency in the country.

ONE Cadillac dealer added that more than 70% of the cars sold by this agency return for complete servicing during the first year. This indicates, the dealer commented that while all customers may not want to buy the Lubrication Agreement, the majority of them are impressed by the station's facilities, and its ability to service the car, and they return for more work.

A Studebaker dealer, reporting that he averages about 25 lube jobs per day, says that "most of them are presold." The dealer sells 6 chassis lubrications for $3.90.

The service manager of a Ford agency, exhibiting records which showed that the dealer averaged around 30 lubrication jobs a day, reports that a good portion of his business is pre-





These two "before" and "after" pictures of the lubrication department of the Dormont Buick Co., Pittsburgh, make an excellent example of how car dealers have brought showmanship of modern equipment into selling car servicing.

While the attendant is servicing an older Buick in the "before" picture, this transformation has taken place recently. An attractive backdrop hides the bare wall; the lift takes the place of the "dolly" which the attendant is shown using to slide under the car; unsightly oil barrels are removed from customers view; gear lube dispenser replaces the can on a truck shown in the earlier picture. Clean painted floors add to the looks of the department.

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MONTANA CRUDE
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If You Doubt Our Word Here Are the Facts
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Perfect Powerful Performance To a
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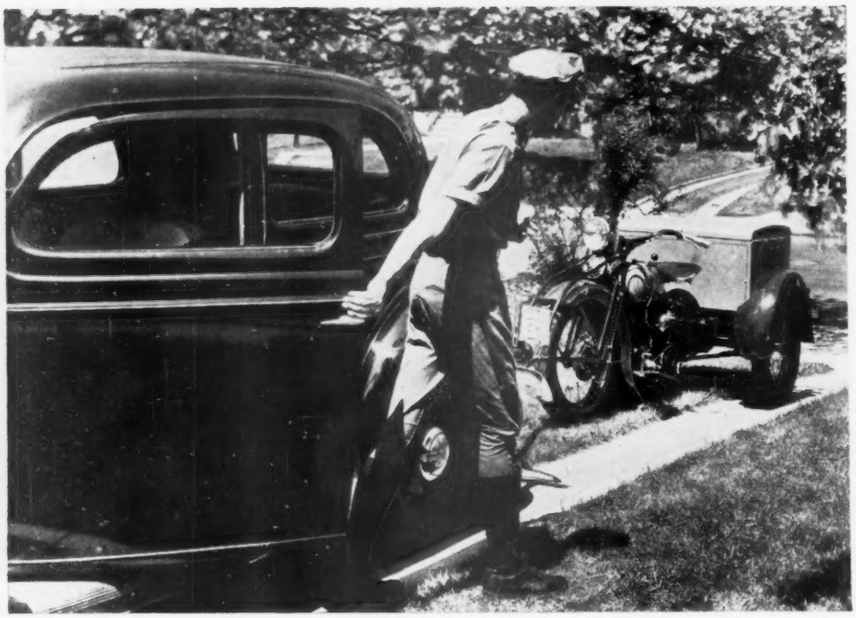


Some car dealers report that pick-up-and-delivery service is responsible for 50% of the cars coming into their lubrication departments regularly. The majority of car dealers use the three-wheeled motorcycle, which can be easily attached to the rear bumper of the customer's car and towed.

sold through coupon books. This dealer sells books for 10 lube jobs at $5. His regular price is 74c for chassis lubrication.

Another means employed by car dealers in selling servicing and which represents another avenue of competition to the oil service station, is "pick-up-and-delivery" service.

One Ford dealer doing about 30 chassis lubrication jobs a day operates 3 motorcycles for this work, but the service manager reports that "most of the time we could use 5 of them."

Commenting on this method of merchandising car servicing, the service manager of a Chevrolet dealer reports that more than 50% of his jobs are sold through pick-up-and-delivery.

Two Cadillac dealers also reported that more than 50% of the service work done in their shops is called for and delivered by their employes.

MORE than 50% of the 25 chassis lubrication sales per day of a Studebaker dealer are either picked up and delivered, or are brought in by the customer and delivered by the dealer, or are called for by the dealer and picked up by the customer.

While the above illustrations of the car dealers' drive for servicing profits through pick-up-and-delivery are probably not typical for all dealers in the country, neverthless they do indicate the growing trend toward this method of selling lubrication and oil drains.

Car dealers, in co-operation with automobile manufacturers, feature seasonal drives for car servicing profits.

One group of dealers feature a Vacation-Touring Drive starting in early summer, and carrying on through the vacation season; a Safe-Driving Campaign in August before the opening of schools in September, and Fall and Winter Change-Over programs.

Dealers of Plymouth, Dodge, De Soto and Chrysler cars also stress Change-Over merchandising of car servicing. This year, they are also featuring a "Service Activity of the Month." Direct mail offering of a monthly service special at a flat price is the backbone of the program.

Virtually all other dealers also feature Change-Over drives, with the majority pushing campaigns to service the vacation-tourists' automobiles.

All car dealers report having been highly successful in their efforts to educate the motorist to the need for changing to seasonal lubricants, and selling car servicing and accessories to the vacationist.

Before the opening of a particular season or drive, car dealers report that they bombard car owners with direct-mail advertising, offering service specials appropriate for the season.

The direct-mail drives of dealers are augmented by advertising in owners' magazines published by most automobile manufacturers. These magazines carry advertisements and articles stressing the need for car servicing for the particular season.

THE majority of dealers make special "one-price" offers during seasonal drives. These "one-price" offers range from complete servicing and checking of the car, including chassis lubrication, oil drain, transmission and differential changes, repacking wheels, checking spark plugs, battery, tires, shock absorbers, cooling systems, fan belts, wiper blades, and other accessories, to a variation of two or more of the services listed.

Most car dealers have worked out attractive and novel displays of accessories to tempt the buving impulses of the motorist, while he is waiting to have his car serviced. Most of the displays noted by the writer in his survey of car dealer service rooms could well be applied to the service rooms of the average oil service station.

Some dealers feature displays of scored pistons, burned out bearings,

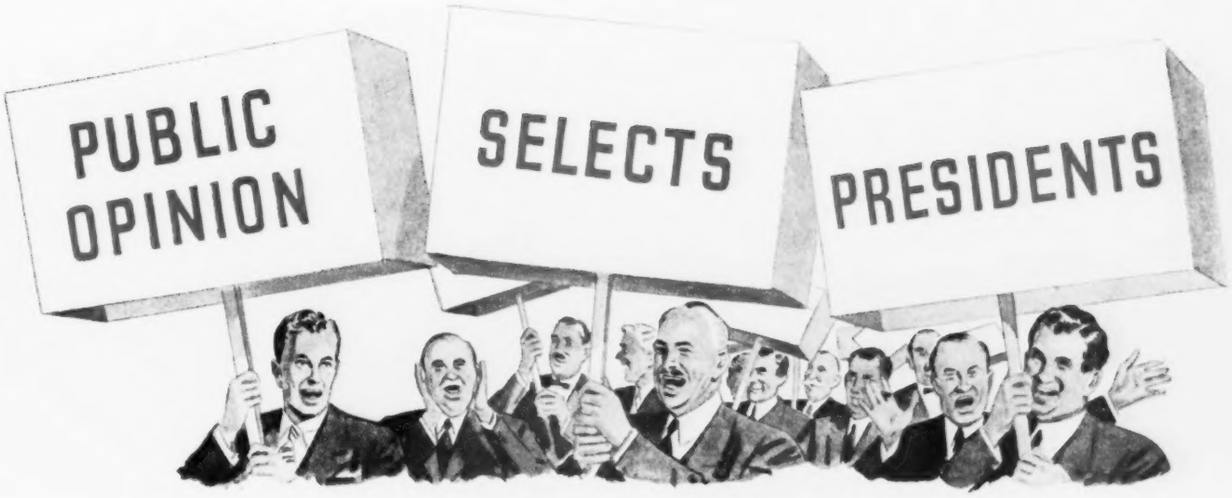
Service Profits of Typical Car Dealer Group

Below are records of the lubrication departments of a group of dealers, selling medium priced cars, most of them located in smaller cities in a midwestern state. Their records illustrate the income enjoyed by car agencies from their lubrication departments.

The average sale, including lubrication, oil drains, wheel packs and other services on the lift, ranged from $1.44 to $3. Gross income from lubrication department of dealer No. 15, located in a city of 300,000 population totaled $1173 for March, of 1940, compared with $943 the same month last year. Only 6 of the 16 dealers listed failed to increase the number of lube jobs done in March of this year compared with a year ago.

Lubrication Department Report—March, 1940

	1939			1940		
Dealer	No. Lube Jobs Per Month	Total $ Sales Per Mo.	Avg. $ Per Job	No. Lube Jobs Per Month	Total $ Sales Per Mo.	Avg. $ Per Job
A	305	$749.62	$2.46	317	$457.00	$1.44
B	.	..	.	137	223.40	1.63
C	78	138.49	1.78	68	112.88	1.66
D	168	519.16	3.09	171	299.50	1.75
E	269	505.55	1.88	263	508.22	1.93
F	...	....	...	253	496.90	1.96
G	...	. . .	.	51	105.99	2.08
H	85	182.70	2.15	77	172.81	2.24
I	138	370.49	2.68	223	501.27	2.25
J	87	204.83	2.35	75	173.65	2.32
K	201	457.49	2.28	209	508.51	2.43
L	222	642.54	2.89	227	573.82	2 53
M	76	174.12	2.29	74	195.25	2.64
N	59	143.45	2.43	44	120.30	2.73
O	351	943.65	2.66	427	1173.78	2.75
P	160	440.00	2.75	186	521.88	2.81
Q	116	376.65	3.25	118	354.54	3.00



...and Spark Plugs too. Sell Champions the People's *Choice!*

IT'S WHAT THE MASS of the people think and believe about anything in this country that ultimately determines its success or failure.

This is just as true of marketed products as it is of our political structure.

It goes without saying that sound and superior products are the only ones which can survive this principle over any length of time.

That's why the accepted American products have the highest quality standards of any in the world.

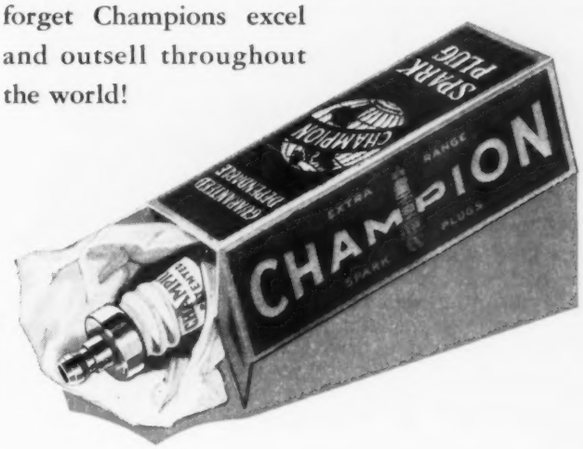
Spark plugs are no different from any other manufactured product in this respect.

Public acceptance of Champion Spark Plugs is unequalled. It has been soundly built on the principle of building the better spark plug, which would in turn make every engine a better performing engine.

The almost universal use of Champions by racing champions everywhere proves how successfully Champion has achieved and maintained this principle.

Champion's continuous and outstanding record of national advertising has kept the motoring public apprized of these facts. In its turn the public has bought Champions and found them all that was claimed and more—always dependable.

That's why it will pay you to stock and sell Champions—the spark plugs champions use—the spark plugs most motorists choose. Don't forget Champions excel and outsell throughout the world!



CHAMPION

SPARK PLUGS

CHAMPIONS EXCEL AND OUTSELL THROUGHOUT THE WORLD!

and partially-chewed wheel bearings, as silent reminders of the need for frequent and regular oil drains and lubrication. Service managers of car dealers have found this type of display effective in stimulating questions from the customer. These questions naturally lead to an opening for the presentation of sound arguments for frequent and regular lubrication.

Many dealers also display a car radio ready to operate, and invite the motorist to try it. Dealers also feature various other displays of automotive equipment and accessories, most of which were designed to permit the motorist to exercise his "bump of curiosity" by handling or demonstrating.

Typical of these displays are rubber blocks built to simulate tire treads. Metal hammers, swung in unison as pendulums and, propelled by the customer, set the blocks in motion on wet tracks. This, to show the non-skid properties of the tire sold by the dealer, as compared to other treads.

Shock absorbers with excessive "play" in the absorber action, also stimulates interest in this equipment, dealers find.

A beam balance, with one side weighted with a new filter unit, the other with a clogged unit, demonstrating the amount of muck in the filter, is used to point the need for this item.

Displays of flashing lights help sell bulbs. Road lamps set up for the motorist to operate, are among the other effective selling aids used by car dealers in their service rooms.

Thorough and regular follow-up of all customers is the car dealers' first line of defense against losing customers, many report. The average good dealer spends much time, effort and money in keeping his follow-up system as complete as possible.

Systematic follow-up of customers' oil drain and lubrication business can be the source of additional profits from regular customers, many service managers point out.

Timing follow-up correspondence or personal contact to remind customers of their need for lubrication work or an oil drain, when the need first develops, can result in lowering the miles driven between oil drains and lubrication services, say dealers.

Most car dealers operating with a thorough follow-up, study the driving habits of their customers and time their follow-up efforts accordingly.

Remarking that the follow-through is the backbone of all his company dealers' lubrication business, the zone manager for one medium-priced car states that a group of 70 dealers report a return ranging from 35 to 80 percent on solicitation. That is, 35 to 80% of the customers on these dealers' follow-up cards, which are turned at least every 90 days, come in regularly for service.

Follow-up brings in 80% of new car buyers as regular customers for lubrication and oil drain service, reports the service manager of a Cleveland Buick dealer. This dealer, who averages $2.25 per lube job, reports that more than 70% of the customers coming in for chassis lubrications are sold oil drains. This is 7 oil changes for every 10 "lube" jobs.

The service manager of a Ford dealer, averaging between 750 and 800 chassis lubrication jobs per month, reports that one girl is employed exclusively to operate follow-up solicitation. This dealer has two follow-up systems, one to act as a cross-check on the other. He has about 3500 customers on his active lists. About 50% of the customers on the active lists are regular customers for lubrication, oil drain, and other services, this dealer reports.

While Ford's recommended oil drain period is 2000 miles, this dealer solicits Ford owners for a change every 1000 miles. The service manager reports that regular follow-up, stressing 1000 mile drains, has been instrumental in getting most customers to drain at less than the 2000-mile interval.

Active follow-up has enabled a Cleveland Studebaker dealer to hold the service work of many cars purchased by customers living in suburbs, 8 to 10 miles from the dealer's shop, the service manager reports.

"Follow-up is our principal source of revenue," states the service manager of one of the largest Chrysler dealers in Ohio. This service head reports that the agency averages about 30 lubrication jobs per day. One girl handles its follow-up, which contains about 2500 names on the active list.

This service manager also states that by the use of follow-up, 1000 mile oil drains can be sold. This dealer's customers are solicited for oil changes on the 1000-mile basis, despite the factory recommendation of 2500 to 3000 miles.

It is interesting to add here that while Chrysler Corp. recommends drain periods of 2500 to 3000 miles in summer, all dealers selling cars in the Chrysler line (Dodge, Plymouth, De Soto, Chrysler) which were contacted push 1000 mile oil change period.

With notably few exceptions, NPN's survey of car dealers showed that the preponderance of dealers selling other makes of cars also featured 1000 mile oil changes in their customer solicitation.

Cars Owned By 44% Of City Families

Forty-four per cent of moderate-income city families own automobiles, according to a survey of 14,469 families in 42 cities reported by the U. S. Bureau of Labor Statistics. No families on relief, or with incomes of less than $10 a week, were included in the survey.

During the year covered by the survey 10.8% of the families purchased automobiles, with three used cars being purchased for every new car bought.

'Gas' Demand Factors Outlined By Breakey

WASHINGTON—Two groups of factors influence motor fuel demand, Herbert A. Breakey, of the Bureau of Mines, declares in an Interior Department economic paper entitled "Trends and Seasonal Variations Influencing Domestic Motor Fuel Demand."

Outlining methods used by the Bureau in determining the prime question of motor fuel demand for use in forecasting petroleum demands, Mr. Breakey lists as his first group, factors affecting the number of motor vehicles in use, most influential factors in this group are per capita wealth and negro population, followed in importance by population density and automobile insurance and fees.

Second group influencing demand for motor fuel are the factors affecting gasoline consumption per motor vehicle, the most important being the average winter temperature, followed by the non-automotive gasoline consumed, as represented by tax refunds, the percentage of trucks with relation to the total motor vehicles, the population density, and automobile fees and insurance.

Per capita wealth of a state, gasoline price (within the range of the past 10 years), and mileage of high-type surfaced highways—without regard to age, width, or other differences within the class—show but little influence upon gasoline consumption per automobile, Breakey's paper states.

TRADEMARKS

The following are trademark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

Representation of propeller in motion, Ser. No. 430,293. Standard Oil Co. of California, Wilmington, Del. and San Francisco. Filed April 2, 1940. For gasoline, lubricating oils and greases. Published July 2, 1940.

PETROMIX, Ser. 427,319. L. Sonneborn Sons, Inc., New York. Filed Jan. 10, 1940. For blend of emulsifying agents and mineral oils used as a base for the manufacture of soluble oils. Published July 2, 1940.

GRAPH LUX, Ser. No. 425,587. Southern Graphite Corp., Norfolk, Va. Filed Nov. 13, 1939. For oils and greases to be mixed with the fuel of internal combustion engines for lubricating internal moving adjuncts thereof and applied on external joints and bearings of automobiles and machinery. Published July 2, 1940.

INDEPENDENT AND HELPFUL

Important to Can Buyers

Nothing is more interesting to can buyers than a source of supply that makes strong, leak-proof, handsomely decorated containers available at a fair price.

The demand for such a service is greater than ever before. Perhaps that is why users in ever increasing number are coming to Crown for the solution of their problems, recognizing that in Crown's ultra-modern plants quality control is given new emphasis.

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Effective Customer Follow-Up Promotes Regular Service Sales

No. 5 Article in NPN's 1000-Mile Lube Sales Campaign

"BUSINESS goes where it is invited," is a trite axiom of merchandising. But for heads of marketing companies who want a good ratio of motor oil and grease to gasoline, a better truism might be: "A follow-up card in the customer's hands is worth a dozen in the office."

But with most stations under lease to dealers who hate anything remotely connected with "bookkeeping," how can management, which knows the value of follow-up systems to the extent of spending millions of dollars a year in perfecting them, get operators or dealers to really use them?

A recent survey by NATIONAL PETROLEUM NEWS indicates that the better than average dealer is doing the most complete job of following up customers. They were enthusiastic about the results obtained from this type of merchandising.

Marketers will be interested in what these successful operators are doing. The survey certainly indicates that there are many methods and systems of follow up. The big problem is how can management get those who are not using follow up, or doing it in a haphazard way, to do so.

It would seem that the use of the follow-up system should be a matter of personal interest of the marketer himself. When the heads of companies get busy on rest rooms, good housekeeping and other good marketing practices, something happened.

It would seem further that the place to start would be on the company's own salesman. The average salesman knows that his company has a follow-up system. A good one. He knows its value. But can he sit down with a dealer and explain the details of how to work it? Can he take a theoretical customer, make out the work order, transfer it to the record card, fill in all the records correctly, write out sample cards applying to different conditions?

Can he present any concrete examples of how others are profiting by using the system? Will he, if need be, spend a day or so actually getting the system working? On return visits to the stations, will he look over the system, and so impress on the dealer that his company considers the follow-up end of the business one of the most important?

It would seem that there is a tremendous loss of the follow up cards themselves by dealers. This in some cases must be due to the fact that they are furnished free in unlimited quantities, or sold at such a low price that they are not considered valuable.

On the other hand, fewer cards, but of better quality and costing the dealer enough to make him appreciate their value should not only stop the loss, but cause the cards to be used more.

Every company executive has had cases where an operator left a station for some reason, leased one down the street and took most of the customers with him. When that happens, it costs plenty of money. If a list were kept of each station's follow up customers, on one of those quick changes a mail or call campaign could be organized immediately—even tho the dealer did take his follow up system with him. It would not take long to build up a complete list of each station's customers.

THERE seems to be a tendency on the part of some operators to depend more on door-jamb plates to get customer refills and other services.

These plates keep a record of the date of oil changes and other services. Smart operators manage to get a look at them when customers come in the station. Some customers depend entirely on them for their needs.

But these should supplement the follow up and not take its place. For competitive stations can read the dates and figures as well as the one putting them on. A reminder from the station making the last change gives the customer a feeling of obligation to go back where he had the original work done.

Important in the success of follow-up on customers, is the building and maintenance of prospect lists. One of the most successful major marketers builds the prospect list when they open a new station by a novel presentation. The entire area surrounding the station is canvassed, but instead of the old stock wedge, if it is during the baseball season for instance, the solicitor starts getting answers to an apparent questionnaire with "Are you interested in baseball." From then on, it's easy to get desired information and extend an invitation to visit the new station.

Prospect lists should be kept up to date or they serve no purpose. Lists of people moving in and out of neighborhoods can often be obtained thru an arrangement with the gas or light companies. Moving companies will often give the information in return for tips regarding prospective jobs. In most large cities lists of car owners within any block radius can be bought. This will save a lot of useless calls, and is accurate.

Study Customer Driving Habits

OIL marketers and station operators who are operating efficient and productive customer follow-up systems, report that the first fundamental in employing this means of solicitation is the study of the driving habits of customers to determine the proper interval at which the follow-up sales effort should be made, or more simply put, to know when the service need develops.

If, for example, a customer drives about 1200 miles a year, with the mileage spread over the 12 months, his car will require an oil change and a chassis lubrication every 30 days, and wheels packed every five months. This customer is then sent a reminder card, and his lubrication business followed up by telephone or personal call every month. If, however, a customer drives an average of 8000 miles a year, he will reach the 1000-mile mark about every six weeks, and oil change and lubrication solicitation would be made every month and a half.

Most dealers operating thorough follow-up routine, ask new customers how many miles they drive each month. This is entered on the customer record card. After the customer has been a "regular" of the station for some time, the operator can easily ascertain from his records the customers' actual driving mileage, and time his solicitations to reach him just after he has put another 1000 miles on the car.

Use 'Penny' Postal Cards

In their planned customer solicitation, the majority of stations use a government postal card for the first reminder that the customer has passed the mileage at which his oil

Intensive Lubrication Drive in Full Swing!

An aggressive editorial campaign waged by National Petroleum News has done much to stimulate lubrication business at service stations this season. This drive, featuring the slogan "For Safety's Sake, Lubricate Every Thousand Miles This Summer," has met with great enthusiasm in the field.

See page 32 for further details

JOIN THE DRIVE

Cash in by giving your customers the extra protection of Heat-Proved Motor Oils!

Why not take full advantage of the splendid opportunity to profit from this aggressive lubrication promotion? If you sign up to handle Koolmotor and Cities Service Motor Oils, you'll be able to offer your customers ***extra*** lubrication protection, because both these fine motor oils are ***heat proved***. That means that they have withstood higher degrees of heat at the refinery than they ever will have to bear as a lubricant. Thus with heat-proved Koolmotor and Cities Service Motor Oils you can offer your customers ***better*** protection and ***longer***, too—help give their cars an extra year of youth. Write to your nearest Cities Service office immediately.

CITIES SERVICE OIL COMPANIES

CITIES SERVICE OIL COMPANY—Chicago, New York, Cedar Rapids, Boston, St. Paul, Grand Forks, Kansas City, Fort Worth, Oklahoma City, Milwaukee, Cleveland, Detroit, Syracuse, Harrisburg.

CITIES SERVICE OIL COMPANY, LTD.—Toronto, Ontario.

ARKANSAS FUEL OIL COMPANY—Shreveport, Little Rock, Jackson, Birmingham, Atlanta, Charlotte, Nashville, Richmond, Miami.

should have been drained, and the car greased.

Most of the larger marketing companies have these cards printed and sell them to the station operator at cost. Usually printed in two or more colors, and stressing the protection and saving from regular lubrication and oil changes, cards used by different companies generally follow the same pattern. Generally they point out that the customers' car had a certain mileage when last serviced, and if he has been driving his normal mileage it needs attention again.

THE station operator's job of customer solicitation, however, only begins with the first reminder that a service is needed. If no response is received from the first card, many dealers follow up the customer either by personal letter, by telephone or with a personal visit.

Some dealers say that they make a note of the fact that customers Smith, Jones, Brown and Green have not responded to the reminder card and station employes are told to keep a close lookout for these customers to come on the station driveway, when they are again solicited for their service business.

The majority of dealers, however, say that they wait five days after the first reminder card was received by the customer, and then a second card is sent, following the second reminder with a 'phone or personal call, if the customer fails to come in within several days.

Solicit Business In Evening

Dealers find that the most appropriate time to make 'phone or personal contacts soliciting their customers' business is in the early evening after the customer has had his dinner. "He won't give you much of an argument with a full meal under his belt," smilingly remarked one dealer, who admitted, however, that he was not able to guess the probable reaction if the customer's wife had been out to bridge all afternoon and prepared the evening meal with the cooperation of a can opener.

Seriously, however, the chances of catching the dilatory customer at home in the early evening are greater, and this is the main reason that most solicitations are made at this time.

NATIONAL CUSTOMER JOB TICKET

NAME OF CUSTOMER Watter Hagan — MAKE OF CAR '39 Ford
ADDRESS 264 So. 3rd St — SPEEDOMETER READING 13,914
WORK AUTHORIZED BY (Customer's Signature) — LICENSE NO. H-1267
NAME OF DEALER — DATE Aug 19 1940

QUANTITY	ITEM	AMOUNT
	White Rose Gasoline	
	White Rose Ethyl Gasoline	
	Royal Gasoline	
	En Ar Co Motor Oil	
6 Qts.	En Ar Co Penn Motor Oil	2 10
	National Motor Oil	
	En Ar Co Gear Lubricant	
	Complete Chassis Lubrication	1 00
1 can	Warners Rad. Cleaner	50
2	600-16 G-100	31 90
2	H D Black 600-16 Tubes	7 30
	TOTAL	$42 80

For your SAFETY and PROTECTION, we have done the following — FREE

INSPECTED:—	CHECKED:—	SERVICED—
UNDER HOOD: Radiator (for leaks, for rust); Water pump & hose connections for leaks; Fan belt; Spark plugs (for cracked porcelains, ignition wires); Oil filter; Missing parts	Gasoline; Motor oil; Transmission; Differential; Battery (water, cables, terminals, corrosion removed); Windshield wiper blade & arm; All lights (front, rear, stop, dome)	Air cleaner; Fuel pump (drained); All windows cleaned; Inside car swept out; Ash trays emptied; Light lenses cleaned; Tires inflated
UNDER CHASSIS: Tires (cuts, nails, wear, leaky valves, missing valve caps); Springs (broken leaves, broken shackles); Oil leaks (engine, transmission, differential); Loose bolts; Missing parts		

LIST OF ITEMS NEEDED
Remind customer by telephone on Sept 19
Warners Rad. Cleaner

110403

FORM NO. B 1098 6M 8-39 P.30

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

NATIONAL CUSTOMER SERVICE RECORD

NAME Watter Hagan — ADDRESS 264 So. 3rd St
MAKE OF CAR Ford — YEAR 1939 — BODY STYLE Sedan — NO. CYL. 8 — LICENSE NO. H-1267 — TIRE PRESSURE FRONT — REAR — RES. PHONE LA. 6713 — BUS. PHONE CH. 42685
REMARKS: — AVG. MILES PER MONTH

DATE AND YEAR	MILEAGE	MOTOR OIL (BRAND & S.A.E.)	CRANKCASE FLUSHED	CHASSIS LUBRICATION	BATTERY	TRANSMISSION	DIFFERENTIAL	FRONT WHEELS	REAR WHEELS	UNIVERSAL JOINTS	CLUTCH	LUBRICATE SPRINGS	OIL FILTER	AIR CLEANER	CUSTOMER FOLLOW-UP: CARD OR LETTER (TYPE SENT)	PHONE CALLS	PERSONAL CALLS	SPECIAL WORK OR SERVICES (WASHING, TIRES, ETC.)
8/19/40	13,914	Essolube 20 and 30	✓	✓	✓	✓	✓	✓	✓				✓	✓				Rad. Cleaner - Sept 10 2 Tires and Tubes

MILEAGE AT WHICH MANUFACTURER RECOMMENDS LUBRICATION OR SERVICE
CAPACITY
SPECIAL COMMENTS:— Telephone in morning. Pick up car and deliver
NO. LUBRICATION POINTS: _____ NO. DIFFERENT LUBRICANTS: _____
FORM NO. B 1096

Job Tickets or Service Order Blanks are necessary to the complete customer follow-up system. Most marketer's station operators transfer information relative to customers' service purchases from the Job Ticket to permanent records during dull periods of the day. Shown above is a typical Job Ticket made out by the station operator and the manner in which it is transferred to permanent customer follow-up record cards. Copy of Job Ticket handed to the customer also promotes confidence in the station, and gives him a record of work performed

Avoid 'High-Pressure' In Contact

Dealers say that they must be extremely careful in telephone and personal solicitations, and avoid anything that smacks of "high-pressuring." "There is a possibility of losing the customer entirely if he is rubbed the wrong way in our solicitation," added one dealer.

In their approach, dealers try to emphasize that their main interest is in seeing the customer obtain the maximum enjoyment and care and expense free miles from his automobile. They reassert the value of regular lubrication in promoting the maximum in driving safety and comfort at a minimum of expense.

A consensus of the dealers surveyed, indicates that their typical follow-up conversation runs along the lines of the following:

"Good evening Mr. Jones, this is Fred Brown of the Blank service station. I note from our records of your car that you haven't had it serviced since July 10. The mileage on that date was 10,124, and ordinarily you would have put more than 1000 miles on it since.

"We know you like to keep your Buick in tip-top shape, and we're interested in seeing it in good running shape. Regular lubrication will keep it purring smoothly, so if you'll just check the mileage, and if it is overdue, bring it in and we'll give it a complete check-up. If you prefer, we could have one of our boys pick it up now and return it later this evening".

DEALERS report that if a customer shows any sign in his telephone conversation that he is displeased with the station's services, or the treatment he has recevied, they grab their hats and hot-foot it out to the customer's residence to find out the reason for the dissatisfaction, and attempt to smooth over any complaint or difficulty that exists.

Mail Cards on Thursday

Thursday is the day of the week selected by most dealers for the mailing of customer reminder cards. These station operators point out that the card will be received on Friday, just before the week-end, when the customer will have more time, and consequently be more disposed to have needed lubrication, oil drains or other services performed.

Too, if week-end travel is contemplated by the motorist, the servicing of his car is all the more necessary. One dealer adds that many of the customers in his area get paid on Saturday, and that Friday is the most logical time for him to remind them of the needs of their automobiles.

Dealers Send 'Thank You' Cards

After customers have responded to the service station's follow-up efforts,

120° in the shade

25° below zero

DUCTILITY
ITS INHERENTLY FINER GRAIN
MAKES ALL THE DIFFERENCE
STRENGTH

. . . it doesn't matter when they're made of

N-A-X
High Tensile

. . . because equipment will have unusually high resistance to SHOCKS and STRESSES

Rolling equipment must be built to operate under widely diversified conditions—in bitter cold and sweltering heat—over good roads and bad—with full load, light load, and empty.

The steel used in such equipment must be able to withstand shocks and stresses—particularly on lightly loaded or empty trips where failures usually occur.

That's why more and more manufacturers are using N-A-X HIGH TENSILE.

N-A-X HIGH TENSILE is unusually ductile and has extremely high resistance to impact and fatigue at both normal and sub zero temperatures. It has high yield point and ultimate strength, excellent weldability, and marked resistance to abrasion and corrosion. It can be fabricated easily, usually without any change in shop practice. As a result, equipment built of N-A-X HIGH TENSILE will last longer, require less maintenance, give long, safe service and make for greater sales and increased customer satisfaction.

Ask your manufacturer about the use of N-A-X HIGH TENSILE in your mobile equipment or let us tell you how others are cashing in on this really superior high tensile steel. We'll be glad to have one of our engineers call, go over your requirements and show you how you can use N-A-X HIGH TENSILE to save money and increase equipment life. Telephone, wire or write for a Great Lakes engineer today. Great Lakes Steel Corporation, Detroit, Michigan.

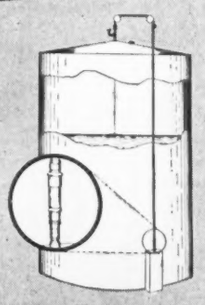
GREAT LAKES STEEL CORPORATION——DETROIT, MICHIGAN

Boston, 1324 Statler Office Building; *Buffalo*, 1000 Walbridge Building; *Chattanooga*, 18 Volunteer Building; *Chicago*, 1026 Builders Building; *Cleveland*, 820 Leader Building; *Dayton*, 1401 Third National Bank Building; *Indianapolis*, 1215-17 Circle Tower; *Minneapolis*, 714 Midland Bank Building; *New York*, 405 Lexington Avenue; *Philadelphia*, 407 Liberty Trust Building; *St. Louis*, 3615 Olive Street; *San Francisco*, 824 Sharon Building; *Toledo*, 906 Edison Building. *Montreal, Quebec*, Drummond, McCall & Co., Limited; *Toronto, Ontario*, Peckover's, Limited.

division of NATIONAL STEEL CORPORATION
Executive Offices, Pittsburgh, Pa.

It's the same old story—locking the barn door after the horse has been stolen. Why risk your neck by climbing around on shaky run-ways or frantically clinging to the top of slippery storage tanks? Simplex Tank Gauges KEEP YOU ON THE GROUND . . . give you quick, accurate readings without a step of climbing. There is no guesswork . . . No loss from open man-holes or undetected leaks. Simplex Gauges fit vertical or horizontal—old or new tanks . . . can be installed quickly and cheaply.

Bulletin 602-36 tells it better—shows you more . . . write for a copy.



VIKING
PUMP COMPANY
CEDAR FALLS, IOWA

and have had their cars serviced, many dealers send "Thank You" cards. These cards generally express the hope that the work was done to the customer's satisfaction, adding that the station operator will remind him when the car will be in the need of servicing again.

While NPN's survey of dealers disclosed that many of them follow the simple routine of sending these cards of appreciation, some of them, however, do not.

Commenting on this, one station operator remarked: "I think the 'thank you' card is just as important as the reminder card in holding business, and it overcomes resistance to the next solicitation".

Silent commentary of the fact that motorists will not recognize their service needs, unless called to their attention, is the routine used by some dealers in their customer follow-up.

These dealers organize their customer solicitation on the assumption that the customer will have to be reminded when he will next need an oil change and a chassis lube job. When they have the car in for this work, the reminder card to be sent to the customer at the time of the next solicitation is made out and filed under the date when the car will again be in need of service. When that date rolls around, the card is removed from the files and placed in the mail, providing the customer has not been in for his lube job and oil change in the interim.

Two dealers operating their follow-up in this manner report that it is very infrequent that a card made out in advance is wasted.

Routine Done During Lull

Because it is virtually impossible in most instances to bring customer record cards up to date as the work is completed, dealers and managers of marketers' stations agree that service order blanks, or job tickets, as they are also called, are necessary for keeping follow-up routine operating smoothly.

They report that complete records are made out on the service order blank when the customer's car is in the service department, and they are transferred to the permanent records during the slow hours of the day.

Service order blanks also serve to prevent the service man from overlooking any part of the automobile or its equipment, where the opening for an extra profit sale may be lurking. They also add to the showmanship of selling lubrication by presenting the customer with a complete record of what has been done, and what has been examined on his car, as well as impressing him with the efficiency and orderliness of the station's service department.

Several station operators report that it is the duty of the night crew to transfer to permanent customer records, all sales made during the day. The majority of dealers and station operators reported that the responsibility for planned customer solicitation is given to one person who does all mailing and keeps watch of all records.

HERE'S A TIMELY TIP from your
SOHIO SERVICE SECRETARY
SOHIO PROTECTION RECORD
If your speedometer reads
or over
YOUR CAR NEEDS
LUBRICATION SERVICE
AN OIL CHANGE
Our records show that your car is due for a check-up. For safety's sake drop in TODAY and let us fix it up for another thousand miles of carefree driving.
SOHIO

Above is similar to first follow-up card used by many service stations to call a customer's attention to the fact that his car is in need of lubrication service. Station operators find the simple routine of sending out reminder cards invaluable in promoting regular drain periods

Customer record cards used by most dealers interviewed, have place for name, address, business and residence 'phone, make of car, year, body style, number of cylinders and license number.

They also show the average number of miles per month; date, and type of service last performed, and mileage on that date; with a special section for keeping track of the follow-up cards sent, and telephone or personal calls made.

Centralized Solicitation Fails

The district office of one major company attempted to centralize customer solicitation, but after two years has abandoned its effort, turning this work back to its own and dealer stations.

This district office had more than 25,000 names on its lists, and had employed 6 girls to work exclusively on handling the routine of customer solicitation. Copies of service orders from its own and dealer stations were sent to the district office, the individual station kept no records.

However, the district manager of this company admits that the dealers and station operators lost the personal contact they had enjoyed with their customers before centralization was tried, and this was the principal reason it was abandoned.

Several station operators of this company were vigorous in condemning centralized sales solicitation, one remarking that some of his customers had received "reminder" cards as late

as a week after they had been in to the station and had their cars serviced.

Another dealer who had operated under this plan pointed out that the district office could not gauge any change in the driving habits of the station's customers, and very often follow-up cards had been received by his customers after the service had been performed.

These dealers agreed with the district manager of the company that the principal fault with centralized solicitation lay in the fact that the dealer lost the personal contact with the customer.

Operators Cite Follow-Up Results

"What makes a customer buy?" is one of the oldest questions in merchandising, and has probably been responsible for more surveys than any other sales problem. Virtually all station operators agree that it is extremely difficult to gauge the amount of business which can be attributed directly to active and thorough customer follow-up.

One dealer, however, who has about 200 customers on his active list, said that while it was difficult to determine just what percentage of his customers who buy all their lube jobs and oil drains at his station could be credited to his following them up, he believed that this method of solicitation accounted for about 3 out of every 10 customers coming back regularly.

"We urge 1000-mile lube jobs and oil changes to all our customers" stated this dealer, although he added that "claims of auto manufacturers (of oil economy) handicap all stations efforts to sell oil changes at this mileage".

One dealer who took over a small station in a relatively high class suburban neighborhood of Cleveland, reports that consistent and thorough follow-up, coupled with salesmanship on the driveway has increased the gallonage of his station from 10,000 to 25,000 gallons a month over a period of three and one half years.

This dealer added that from an occasional lube job and oil change done by the station in 1937—before he took over—he has been able through active customer solicitation and driveway salesmanship, to boost it to an average of about 210 lube jobs per month.

This dealer keeps his follow-up records at his home, and brings home the service order blanks and transfers them to the permanent records after he has done his stint for the day. All mailing is done from his home also.

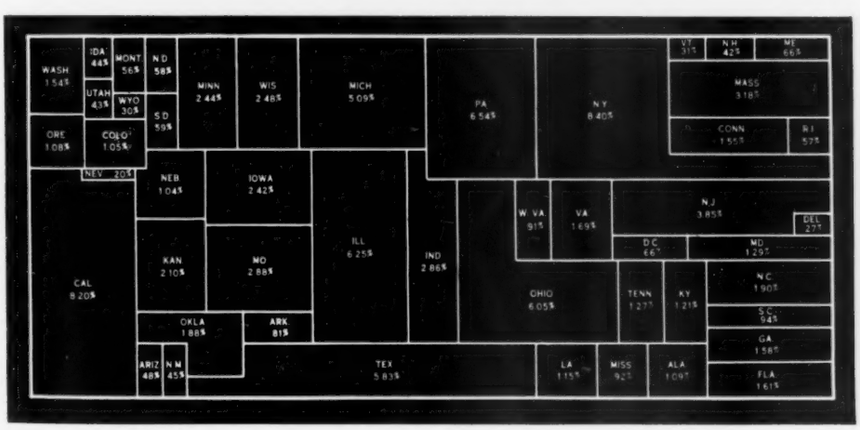
Manager of a major company owned and operated super service station says that he feels that at least one-third of the station's lubrication and oil change business could be credited to active customer solicitation.

This manager remarked that his and other oil service stations are experiencing more competition from the car dealer for lubrication and oil change business. He said that very few of the new car owners who purchase gasoline from the station also have their cars lubricated or the oil changed. This business, he added, goes to the dealer who sold the car, and that it takes at least six months for his lubrication agreement with the car dealer to run out before the station can "get a crack at the business".

He enumerated specific instances of customers who believed that they had been getting lubrication coupon books free with the purchase of the car, while the price had been added to the cost of the automobile. "We'll have to find some way to sell against that competition", he concluded.

Another dealer, who feels that planned customer solicitation is another salesman for the station, commenting on the value of follow-up stated that while many stations know at all times the amount of products they have on hand, yet they fail to keep an "inventory" of their customers; their needs, and probable purchases.

Size of States If Based On Gasoline Gallonage



If size of states were determined by amount of gasoline they consumed in 1939, a map of the nation would look like the above pictograph. California, Texas and Illinois, three of the country's biggest producers, are also three of the biggest consumers—Courtesy, Sales Management

Do Your Service Stations Provide Toilet Seat Covers?

Thousands of travelers are thinking this question, whether they ask it or not.

And the answer "Yes" is creating increased gallonage for more and more stations. Particular people are quick to find out which organizations are providing this sanitary service.

ONLIWON* Toilet Seat Covers will help your stations get new business, hold old business against competitors, prevent complaints and save waste and expense in your washrooms.

ONLIWON Toilet Seat Covers are made of soft, white tissue that disintegrates quickly and is easily flushed. Extra large—17¾" x 20" for full protection.

ONLIWON Cabinets protect the seat cover supply from dust, contamination and handling. It can be refilled when partially empty and cannot get out of order. Requires only 5½" x 11⅛" wall space. Baked white enamel surface is easy to keep clean.

** Trade Mark ONLIWON Reg. U. S. Pat. Off.*

● **If your jobber does not handle ONLIWON Toilet Seat Covers, write to A.P.W. Paper Company, Inc., Albany, N. Y.**

ONLIWON
Interfolded Tissue
TOILET SEAT COVERS
Product of A.P.W. Albany, N.Y.

Company Policies Are Profitable 'Iowa Plan Victim' Finds

(*Continued from page 24*)

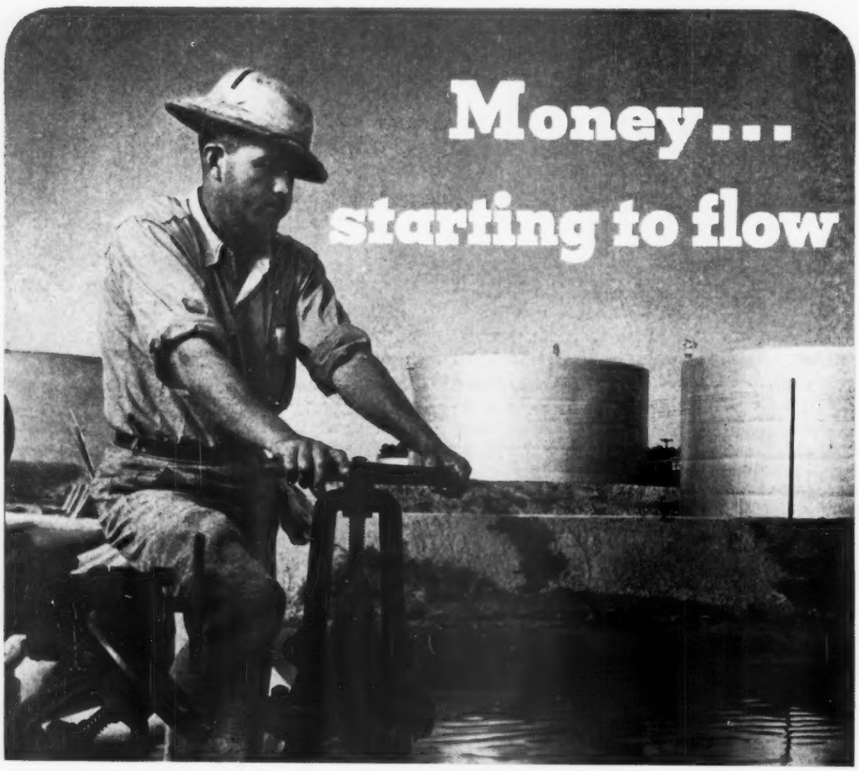
questions that any good manager can improve on to fit his particular local conditions:

1. Is applicant financially able to handle the Station?
2. Did he earn the money, borrow it, or has he a backer?
3. Is he experienced, yet not "set in his ways"?
4. Is his past record clean?
5. Is he ambitious and willing to learn?
6. Is he an operator or salesman, or both?
7. Is he inclined to become discouraged?
8. Does his personal appearance reflect good housekeeping?
9. Can he train his men?
10. Is he agreeable, and can he smile?

Question No. 1—"Is applicant financially able to handle the station"?—should be the first consideration. Occasionally a man with just barely enough capital to start a station makes the grade. Usually they don't, and the company suffers. The amount of money required, of course, varies with the station. The applicant's financial position should be checked on these points: Does he have enough to completely stock every seasonable grade of oil and grease, with enough for display purposes? Is he in position to take over the station's equipment and tools, and enough to buy modern equipment if necessary? Can he buy at least 4 complete uniforms for himself and his helpers? Does he have at least $20 change, and a bank account to cover some "cuff" customers—and there will be some. Is he in a position to buy full truck loads of "gas"? Does he have enough money for a representative stock of tires—not one or two—and all automobile necessities and some accessories?

But if the prospect has sufficient money and the answers to the other questions are not right, future trouble is still being invited. Once you get an operator, no matter how good he is, if he is neglected, it will cost business. Operators can't be petted and they can't be scolded, but they do appreciate being told how to run a station the right way.

If you are not entirely free from worries caused by "Iowa Plan victims"—and there are still a lot of them—maybe the system used on Bill will help. Anyhow, it won't cost anything to try it, and if you use the inspection system on competitive as well as your own stations, you'll have a personal rating chart on yourself that should help your progress.



Photograph by Robert Yarnall Richie

The valve turns—it may be your commodity starting to flow from tanker to General American tank. And we never forget that liquid represents Money to you. So we watch it every step—guard against contamination—send it to modern protective tanks. We put our facilities at your command for speedy shipment at any hour. General American saves your commodity — and saves you money. All without a penny's investment on your part. Join the world leaders who profit from General American Terminal Service.

Strategically located to serve you!

GATX GENERAL AMERICAN

GENERAL AMERICAN TANK STORAGE TERMINALS

Goodhope, La. and Westwego, La., (Port of New Orleans)
Corpus Christi, Texas
Carteret, N. J. (Port of New York) **Galena Park, Texas** (Port of Houston)

A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

Tide Water Profits Reported $5,904,865

NEW YORK—Net profit of Tide Water Associated Oil Co. for the first half of 1940 was nearly four times as great as that for the first six months of 1939, William H. Humphrey, president, reported to stockholders today. Earnings of $5,904,865 this year which amounted to 75c per share of common stock outstanding, compares with $1,206,410 or 19 cents per share last year.

In his letter to stockholders, Mr. Humphrey stated that the increase in income is due principally to unusually large earnings during the first quarter of the year, operations in the company's eastern territory having benefited very materially from large sales volume of heating oils, kerosine and gasoline. Sales of most of the major products declined during the second quarter of the year, he said.

MARKETS

Atlantic Coast

NEW YORK, Aug. 17.—Low quotation for most grades of gasoline were down at 0.3c at Albany, Portland and Providence the past week. Quotations reported for 72-74 oct. by Albany suppliers ranged from 5.90 to 6.20c; Portland, 6 to 6.30c; and Providence, 5.90 to 6.50c.

Fuel oil price shading was reported at New York, where a supplier quoting 4c for barge lots said he still had "120,000 bbls. of the best domestic material with less than ½ of 1% sulfur in storage" and added that he was willing to sell to "anyone interested." Same supplier said he had heard of sales at 3.875c, f.o.b. terminals. Barge quotations reported by other New York suppliers for No. 2 ranged up to 4.3c.

Bunker "C" fuel was said to be "steady" at $1.15 to $1.25, New York.

Gulf

NEW YORK, Aug. 17.—Cargo sales of 75,000 bbls. No. 2 fuel at 3.375c and 55,000 bbls. bunker "C" fuel at $0.90 a bbl. were reported at the Gulf the past week and new inquiries for these products were said to be in the market.

Asking prices for 400 e.p., 72-74 oct. gasoline were down 0.25c to 3.875c. Refiner who reported offering at this price said he had heard of offerings as low as 3.75c. Unconfirmed reports of price shading on other grades of gasoline, "by as much as 0.25c," were heard.

Sale of 3500 bbls. bunker "C", ships' bunkers, at $0.90 was reported by a southwestern refiner. A refiner who reported quoting ships' bunkers at $0.80 and cargo lots at $0.85 said his quotations were "firm" and he had material to sell at those prices.

Mid-Continent

TULSA, Aug. 17.—An Oklahoma refiner last week admitted offering 72-74 oct. gasoline at 4c and 60 oct. & below gasoline at 3.25c for restricted shipment into Iowa and 4 north mid-western states. These quotations were first called to NPN's attention by an Iowa jobber who mailed NPN a salesman's follow-up letter which quoted him 4c for 72-74 oct. and called his attention to the "high quality" of the gasoline.

This Oklahoma refiner gave NPN, as his official quotation, "4 to 4.625c" for 72-74 oct., stating that he offered as low as 4c only in 5 states where it was necessary to "meet competition." He added that he had heard of prices as low as 3.875c for 72-74 oct., FOB Group 3. Because his low prices are for restricted shipment, they have not been included in the price tables, which are now unrestricted open spot prices only.

Another refiner, said to have quoted 3.875c for 72-74 oct., refused to confirm or deny report. This refiner said he had heard of "below market offerings," but had made no change in his 4.625c quotation for 72-74 oct. Several Oklahoma refiners said they had not encountered any 4c competition on 72-74 oct., FOB Group 3 for unrestricted shipment. Most refiners reported gasoline stocks as "low," some saying they were behind on orders from 1 to 15 days. Inter-refinery gasoline purchases of 125 cars were reported, making cumulative total of 316 cars for August delivery.

A North Texas refiner reported reducing his qasoline quotations 0.125 to 0.625c, but added his lower prices were restricted to buyers in "8 counties immediately surrounding" his Witchita Falls plant and were not for unrestricted shipment to other points in Texas or New Mexico.

Pennsylvania

CLEVELAND, Aug. 17.—Aside from an 0.125c advance in 36-40 fuel oil in the lower western Pennsylvania districts, quotations reported by refiners the past week for the most part were unchanged. Some refiners reported increased quotations for kerosine and 200 vis. neutral but low quotations were reported unchanged.

Fuel oil, 36-40 gravity, was said to be exceptionally scarce in the lower field. With crude runs at the lowest levels in more than two years, fuel oil was said to be in big demand for cracking. Two refiners, usually large sellers of fuel oil, said they were sold up for the balance of August. Another refiner who said he usually buys 200,000 gals. a month of fuel oil for cracking said for several months he had had to obtain his cracking stock from other refinery districts. Quotations reported the past week ranged from 4 to 4.125c, up 0.125c on the low.

A 1c advance to 22c in his quotation for 25 pour, 200 vis. neutral was reported by one refiner. Quotations reported by other refiners were 21c. All reports indicated neutrals were "tight."

New inquiries for bright stock were said to have "dried up," and both "dark and bright stocks are weak," commented one refiner. Another refiner who had been quoting 13c open spot, 11c inter-refinery, for 25 pour bright stock, late in the week said that he was still quoting 13c open spot but that his jobbers "under contract are paying 10.50c and we're quoting 10.50c inter-refinery."

Mid-Western

CHICAGO, Aug. 17.—Scarcity of heavy fuel oils was reported by several tank car marketers in Chicago this week. Shutdown of 5 southern Illinois refineries and curtailed crude runs at several other refineries was said to have considerably reduced the nearby supply for the Chicago industrial area. One marketer said he could sell "40 or more cars" of southern Illinois fuel if the oil were available.

Quotations for refined products generally were unchanged, according to refiners and tank car marketers. Considerable concern was expressed over reports of lower prices reported from Oklahoma. "We've been finding stiff competition and low prices in many areas," was typical of comments from refiners.

Group 3 gasoline quotations reported by refiners ranged from 4.625 to 5.25c for 72-74 oct., leaded; 4.25 to 4.75c for 63-66 oct.; and 3.875 to 4.25c for 60 & below. Marketers' Group 3 quotations for the three grades ranged from 4.00 to 4.25c, 3.50 to 3.625c, and 3.375 to 3.50c, respectively.

Total open spot gasoline sales reported by three tank car marketers were: 19 cars 72-74 oct., 1 car at 4.25c, 5 cars at 4.125c, and 13 cars at 4c; 1 car of 63-66 oct. at 3.625c; and 2 cars of 60 & below at 3.50c.

California

LOS ANGELES, Aug. 17.—Shipments to Pacific foreign ports dropped to a new low in volume the past week, according to reports. Two cargoes of U. S. motor gasoline were said to have been shipped to Japanese interests, with necessary supporting affidavits signed by them, and a cargo of low grade crude was also reported shipped to a Japanese port. These were believed to be the only movements of those products to the Orient.

Quotations were nominal but inquiries received indicated buyers expected to get special concessions. In one instance, a substantial order for bunker C fuel oil was reported refused because buyer offered $0.85 per bbl., while suppliers said they were holding for $0.90 per bbl

Some recession was noted in rack prices of third grade gasoline at independent plants in the Los Angeles Basin. A large quantity was said to be quoted at 4.75c per gallon, with limited quantities available at 4.5c per gallon.

Gas and diesel oils were reported firmer at $1.20 per bbl; kerosine distillate was quoted at $1.15 per bbl.

REFINERY and SEABOARD PRICES

In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

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Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test; and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

Summary of Daily Gasoline Prices (Aug. 13 to Aug. 19)

U. S. Motor, (ASTM octane)	Latest Prices Mon. Aug. 19	Aug. 13	Aug. 14	Aug. 15	Aug. 16
72-74 octane:					
Oklahoma	(o) 4.625–5.25	4.625– 5.25	4.625– 5.25	(m) 4.625–5.25	(n) 4.625–5.25
Mid-Western (Group 3 basis)	4.625– 5.25	4.625– 5.25	4.625– 5.25	4.625– 5.25	4.625– 5.25
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	p) 4.75 –4.875	4.75 – 4.875	4.75 – 4.875	(p) 4.75 –4.875	(p) 4.75 –4.875
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.875 (2)	4.875 (2)	4.875 (2)	4.875 (2)	4.875 (2)
63-66 octane:					
Oklahoma	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75
Mid-Western (Group 3 basis)	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	(p) 4.50 –4.625	4.50 – 4.625	4.50 – 4.625	(p) 4.50 –4.625	(p) 4.50 –4.625
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.50 (2)	4.50 (2)	4.50 (2)	4.50 (2)	4.50 (2)
60 octane & below:					
Oklahoma	3.875– 4.25	3.875– 4.25	3.875– 4.25	3.875– 4.25	(n) 3.875–4.25
Mid-Western (Group 3 basis)	3.875– 4.25	3.875– 4.25	3.875– 4.25	3.875– 4.25	3.875– 4.25
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	(p) 4.00	4.00	4.00	(p) 4.00	(p) 4.00
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	3.875 (2)	3.875 (2)	3.875 (2)	3.875 (2)	3.875 (2)
Motor Gasoline, 72-74 octane (ASTM):					
New York harbor	5.50 – 6.50	5.50 – 6.70	5.50 – 6.50	5.50 – 6.50	5.50 – 6.50
Philadelphia district	5.75 – 7.00	5.75 – 7.00	5.75 – 7.00	5.75 – 7.00	5.75 – 7.00
Baltimore district	6.25 – 7.75	6.25 – 7.75	6.25 – 7.75	6.25 – 7.75	6.25 – 7.75
Motor Gasoline:					
74-76 Octane: (L-3)					
Bradford-Warren (Western Penna.)	6.00	6.00	6.00	6.00	6.00
Other Districts (Western Penna.)	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
72-73 Octane: (L-3)					
Bradford-Warren (Western Penna.)	5.75 (2)	5.75	5.75	5.75	5.75 (2)
Other Districts (Western Penna.)	5.75 (2)	5.75	5.75	5.75	5.75 (2)

REFINERY PRICES

Gasoline—U. S. Motor (ASTM Octane) except where otherwise specified

Prices Effective	Aug. 19	Aug. 12
OKLAHOMA		
72-74 oct.	(o) 4.625–5.25	4.625– 5.25
63-66 oct.	4.25 – 4.75	4.25 – 4.75
60 oct. & below	3.875– 4.25	3.875– 4.25
60-62 400 e.p.	4.00 (2)	4.00 (2)
MID-WESTERN		
72-74 oct.	4.625– 5.25	4.625– 5.25
63-66 oct.	4.25 – 4.75	4.25 – 4.75
60 oct. & below	3.875– 4.25	3.875– 4.25
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
72-74 oct.	(p) 4.75 –4.875	4.75 – 4.875
63-66 oct.	(p) 4.50 –4.625	4.50 – 4.625
60 oct. & below	(p) 4.00	4.00
60-62, 400 e.p.	4.00 (2)	4.00
W. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
72-74 oct.	4.875 (2)	4.875–5.00 (2)
63-66 oct.	4.50 (2)	4.50–4.625 (2)
60 oct. & below	3.875 (2)	3.875–4.00 (2)
CENT. W. TEX. (Prices to truck transports)		
72-74 oct. (L-3)	4.75 (1)	5.00 (1)
67-69 oct. (L-3)	4.125 (1)	4.25 (1)
62 oct. & below (L-3)	3.75 (1)	4.00 (1)
KANSAS (For Kansas destinations only)		
72-74 oct.	4.875– 5.125	4.875– 5.125
63-66 oct.	4.50 – 4.625	4.50 – 4.625
60 oct. & below	4.00 – 4.375	4.00 – 4.375

Prices Effective	Aug. 19	Aug. 12
ARK. (FOB Ark. plant of one refiner, for shipment to Ark. & La.)		
72-74 oct.	4.75	4.75
70-72 oct.	4.625	4.625
60 oct. & below	4.25	4.25
WESTERN PENNA. (Motor gasoline.)		
Bradford-Warren:		
74-76 oct. (L-3)	6.00	6.00
72-73 oct. (L-3)	5.75 (2)	5.75
Naphtha		
Untreated naphtha	.....	.....
Stoddard Solvent	.....	.....
Other districts:		
74-76 oct. (L-3)	5.75 – 6.00	5.75 – 6.00
72-73 oct. (L-3)	5.75 (2)	5.75
Naphtha		
Untreated naphtha	5.50	5.50
Stoddard Solvent	5.75 – 6.00	5.75 – 6.00
CENTRAL MICHIGAN (f)		
U.S. Motor: (Oct. L-3)		
72-74 oct.	6.25 – 7.00	6.25 – 7.25
67-69 oct.	5.50 – 6.25	5.50 – 6.25
Str.-Run Gasoline	(g) 4.25–5.00	(g) 4.25–5.00
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
72-74 oct.	7.125	7.125
CALIFORNIA U.S. Motor:		
58-61 grav., 375-400 e.p., 65 oct. & above	6.50 – 8.00	6.50 – 8.00
54-58 grav., for outside state shipment	5.00 – 6.25	5.00 – 6.50
54-58 grav., for instate shipment	4.50 – 6.25	4.75 – 6.25

Kerosine, Gas & Fuel Oils

Prices Effective	Aug. 19	Aug. 12
OKLAHOMA		
41-43 grav. w.w.	3.875– 4.25	3.875– 4.25
42-44 grav., w.w.	4.00 – 4.625	4.00 – 4.625
Range Oil	3.50 – 3.875	3.50 – 3.875
No. 1 P.W.	3.375– 3.75	3.375– 3.75
No. 1 straw	3.25–3.50 (2)	3.25–3.50 (2)
No. 2 straw	3.25 – 3.625	3.25 – 3.625
No. 2 dark	3.375 (1)	3.375 (1)
U.G.I. gas oil	3.25 (1)	3.25 (1)
No. 3 fuel	3.125– 3.375	3.125– 3.375
No. 6 fuel	$0.55 (2)	$0.55 (2)
14-16 fuel	$0.85 (1)	$0.85 (1)
MID-WESTERN		
41-43 grav. w.w.	3.875–4.25	3.875– 4.25
42-44 grav. w.w.	4.00 –4.625	4.00 – 4.625
Range oil	3.50 –3.875	3.50–3.875 (2)
No. 1 p.w.	3.375–3.75	3.375– 3.75
No. 1 straw	.....	.....
No. 2 straw	3.25 – 3.50	3.25 – 3.50
No. 3	3.125– 3.375	3.125– 3.375
No. 5	$0.75 (1)	$0.75 (1)
No. 6	$0.50–$0.55 (2)	$0.50–$0.55 (2)
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
41-43 grav. w.w.	(p) 3.875 (1)	3.875–4.00 (2)
No. 1 P.W.	(p) 3.875 (1)	3.875 (2)
KANSAS (For Kansas destinations only)		
41-43 gravity w.w.	4.25 (1)	4.25 (1)
42-44 gravity w.w.	4.125– 4.375	4.125– 4.375
No. 1 p.w.	3.625– 3.875	3.625– 3.875
No. 6 fuel	$0.60-$0.625 (2)	$0.60-$0.625 (2)

(f) Prices FOB Central Michigan refinery group basis for shipment within Michigan; shipments may originate at plants outside Central group. (g) Excluding Detroit shipment. (h) For shipment to Ark. points only. (i) Quotations. (j) Sale. (k) Sales. (m) One refiner reported quoting "4.00 to 4.625" in some mid-western areas to meet competition. (n) One refiner reported quoting "4.00 to 4.625" for 72-74 oct. and "3.25 to 3.875" for 60 oct. & below, the lower prices of these two ranges for sale to 5 mid-western states only. (o) Two refiners reported quoting "4.00 to 4.625" for 72-74 oct.; the lower prices applying only to shipments into restricted competitive areas. (p) One N. Texas refiner quotes following prices for shipment to "8 counties immediately surrounding" his Wichita Falls refinery: U. S. Motor 72-74 oct. 4.75, 63-66 Oct. 4.00, 60 Oct. & below 3.50, 41-43 kerosine 3.375, No. 1 p.w. fuel 3.875.

REFINERY PRICES (Continued)

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

Kerosine, Gas & Fuel Oil

(Continued)

Prices Effective	Aug. 19	Aug. 12
ARK. (F.o.b. Ark. plant of one refiner for shipment to Ark. and La.)		
41-43 grav. w.w.	4.25	4.25
No. 1	3.625	3.625
No. 2	3.375	3.375
28-32 zero fuel	3.25	3.25
Tractor Fuel	(h)4.25	(h)4.25
WESTERN PENNA.		
Bradford-Warren:		
45 grav. w.w.	4.75 – 5.125	4.75 – 5.125
46 grav. w.w.	5.125 (1)	5.125 (1)
36-40 gravity	4.875	4.875
Other districts:		
45 grav. w.w.	4.75 – 5.00	4.75 – 5.00
46 grav. w.w.	4.875 (1)	4.875 (1)
47 grav. w.w.	4.875– 5.125	4.875– 5.125
36-40 gravity	(l) 4.00 –4.125	(l)4.00 –4.125
CENTRAL MICHIGAN (f)		
47-49 gravity w.w.	4.50 – 5.00	4.50 – 5.00
P.W. Distillate	4.25 – 4.50	4.25 – 4.50
No. 3 gas oil, Str.	4.00 – 4.25	4.00 – 4.25
U.G.I. gas oil	3.25 – 3.75	3.25 – 3.75
Fuel Oils (Vis. at 100):		
500-700 Vis.	2.50-3.00 (2)	2.50-3.00 (2)
300-500 Vis.	2.25-3.25 (2)	2.25-3.25 (2)
100-300 Vis.	3.25-3.50 (1)	3.25-3.50 (1)
CALIFORNIA		
40-43 grav. w.w.	4.50 – 6.00	4.50 – 6.00
San Joaquin Valley:		
Heavy fuel	$0.45 –$0.75	$0.45 –$0.75
Light fuel	$0.55 –$0.85	$0.55 –$0.85
Diesel fuel	2.75 – 4.00	2.75 – 4.00
Stove dist.	3.00 – 5.00	3.00 – 5.00
Los Angeles:		
Heavy fuel	$0.45 –$0.65	$0.45 –$0.65
Light fuel	$0.45 –$0.70	$0.45 –$0.70
Diesel fuel	2.75 – 4.00	2.75 – 4.00
Stove dist.	2.75 – 4.00	2.75 – 5.00
San Francisco:		
Heavy fuel	$0.80	$0.80
Light fuel	$0.90	$0.90
Diesel fuel	4.50	4.50
Stove dist.	5.50	5.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Lubricating Oils

WESTERN PENNA.

Viscous Neutrals — No. 3 col. Vis. at 70° F.

200 Vis. (180 at 100°) 420-425 fl.		
0 p.t.	24.50 (1)	24.50 (1)
10 p.t.	23.50 (1)	23.50 (1)
15 p.t.	22.50 (1)	22.50 (1)
25 p.t.	21.00 –22.00	21.00
150 Vis. (143 at 100) 400-405 fl.		
0 p.t.	22.50 (1)	22.50 (1)
10 p.t.	21.50 (1)	21.50 (1)
15 p.t.	20.50 (1)	20.50 (1)
25 p.t.	19.00	19.00
Cylinder Stocks		
Brt. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col.		
10 p.t.	14.50 (1)	14.50 (1)
15 p.t.	13.50 (1)	13.50 (1)
25 p.t.	12.00 –13.00	12.00 –13.00
600 S.R. filterable	8.00	8.00
650 S.R.	9.00 –10.00	9.00 –10.00
600 fl.	10.00 –11.00	10.00 –11.00
630 fl.	12.00	12.00

MID-CONTINENT (F.o.b. Tulsa)

Neutral Oils Vis. at 100° F. 0 to 10 P.P.)

Pale Oils:

Vis.	Color		
60-85	No. 2	5.25 – 5.75	5.25 – 5.75
86-110	No. 2	5.25 – 6.25	5.25 – 6.25
150	No. 3	8.00 –10.25	8.00 –10.25
180	No. 3	9.00 –10.50	9.00 –10.50
200	No. 3	9.50 –11.00	9.50 –11.00
250	No. 3	10.50 –12.00	10.50 –12.00
280	No. 3	11.00 –13.75	11.00 –13.75
300	No. 3	11.50 –14.25	11.50 –14.25

Lubricating Oils (Cont'd)

Prices Effective	Aug. 19	Aug. 12
Red Oils:		
180—No. 5	9.00 (2)	9.00 (2)
200—No. 5	9.00–10.00 (2)	9.00–10.00 (2)
280—No. 5	11.50–12.00 (2)	12.00 (1)
300—No. 5	11.50 –12.00	11.50–12.00 (2)

Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.

Bright Stocks:		
200 Vis. at D. 210°.	18.00 (1)	18.00 (1)
150-160 Vis. at 210° D:		
0 to 10 p.p.	14.00 –16.00	14.00 –16.00
10 to 25 p.p.	13.50 –15.50	13.50 –15.50
25 to 40 p.p.	13.50–15.00 (2)	13.50–15.00 (2)
150-160 vis. at 210° E.	13.00 –15.00	13.00 –15.00
120 Vis. at 210° D:		
0 to 10 p.p.	13.50 –15.25	13.50 –15.25
25 to 40 p.p.	14.375 (1)	14.375 (1)
600 S.R. Dark Green	7.00 (2)	7.00 (2)
600 S.R. Olive Green	8.00 – 9.50	8.00 (2)
631 S.R.	12.00 (1)	12.00 (1)
Black Oil	4.00 –5.50 (2)	4.00 –5.50 (2)

SOUTH TEXAS Neutral Oils

Vis.	Color		
Pale Oils: (*Vis. at 100°F*)			
100	No. 1½-2½	5.25 – 5.75	5.25 – 5.50
200	No. 2-3	7.25 – 7.75	7.25
300	No. 2-3	7.75 – 8.25	7.75
500	No. 2½-3½	8.50 – 9.00	8.50
750	No. 3-4	8.75 – 9.25	8.75
1200	No. 3-4	8.875– 9.375	8.875
2000	No. 4	9.00 – 9.50	9.00
Red Oils:			
200	No. 5-6	7.25 – 7.75	7.25
300	No. 5-6	7.75 – 8.25	7.75
500	No. 5-6	8.50 – 9.00	8.50
750	No. 5-6	8.75 – 9.25	8.75
1200	No. 5-6	8.875– 9.375	8.875
2000	No. 5-6	9.00 – 9.50	9.00

CHICAGO (From Mid-Continent p.l. crude)

Neutral Oils (Vis. at 100° F. 0 to 10 p.p.)

Pale Oils

Vis.	Color		
60-85	No. 2	7.25	7.25
86-110	No. 2	7.25	7.25
150	No. 3	8.50	8.50
180	No. 3	9.50	9.50
200	No. 3	10.00	10.00
250	No. 3	11.00	11.00
Red Oils:			
180	No. 5	9.50	9.50
200	No. 5	9.50	9.50
250	No. 5	11.00	11.00
280	No. 5	12.00	12.00
300	No. 5	12.00	12.00

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower.

Unfiltered Steam Refined: (Viscosity at 210°)		
140	8.75	8.75
160	9.50	9.50
200	10.50	10.50
Bright stocks, 160 vis. at 210, No. 8 color:		
0 to 10 p.p.	15.50	15.50
15 to 25 p.p.	14.50	14.50
30 to 40 p.p.	13.95	13.95
E filtered Cyl. Stock	12.50	12.50

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

FOB GROUP 3			
Grade 26-70	(k)1.50	(k)1.50
FOB BRECKENRIDGE			
Grade 26-70	(i)1.25	(i)1.25
CALIFORNIA (FOB plants in Los Angeles basin)			
75-85, 350-375 e.p. for blending	4.75 – 5.00	4.75 – 5.00

Naphtha and Solvent

Prices Effective	Aug. 19	Aug. 12
(FOB Group 3)		
Stoddard solvent	5.875	5.875
Cleaners' naphtha	6.375	6.375
V. M. & P. naphtha	6.375	6.375
Mineral spirits	5.375	5.375
Rubber solvent	6.375	6.375
Lacquer diluent	6.625– 7.375	6.625– 7.375
Benzol Diluent	7.875– 8.375	7.875– 8.375

Wax

White Crude Scale:

WESTERN PENNA. (Bbls., C.L., N. Y.)		
122-124 A.m.p.	2.00 – 2.25	2.00 – 2.625
124-126 A.m.p.	2.00 – 2.25	2.00 – 2.625
OKLAHOMA (Bbls. or burlap bags, C.L.)		
124-126 A.m.p.	2.25–2.50 (1)	2.25–2.50 (1)

CHICAGO (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are EMP (ASTM) methods; add 3° F. to convert into AMP.)

Fully refined:		
122-124 (bags only)	5.60	5.60
125-127	5.60	5.60
127-129	5.85	5.85
130-132	6.15	6.15
132-134	6.40	6.40
135-137	7.15	7.15

Petrolatums

WESTERN PENNA. (Bbls., carloads; tank cars, 0.5c per lb. less.)		
Snow White	5.125– 6.125	5.125– 6.125
Lily White	4.375– 5.125	4.375– 5.125
Cream White	3.375– 4.125	3.375– 4.125
Light Amber	2.625– 3.00	2.625– 3.00
Amber	2.375– 2.875	2.375– 2.875
Red	2.125– 2.625	2.125– 2.625

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline-Kerosine		Distillate-Gas Oil-Fuel Oil	
	Cents per Cwt.	Cents per gal. 6.6 lbs.	Cents per Cwt.	Cents per gal. 7.4 lbs.
Chicago, Ill.	40	2.640	32	2.368
Decatur, Ill.	39	2.574	31	2.294
Joliet, Ill.	40	2.640	32	2.368
Peoria, Ill.	39	2.574	31	2.294
Quincy, Ill.	36	2.376	29	2.146
Indianapolis, Ind.	48	3.168	39	2.886
Evansville, Ind.	46	3.036	37	2.738
South Bend, Ind.	49	3.231	**42	**3.108
Detroit, Mich.	64	4.224	51	3.774
Gd. Rapids, Mich.	61	4.026	50	3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	51	3.366	41	3.034
Milwaukee, Wis.	43	2.838	34.5	2.553
LaCrosse, Wis.	46	3.036	37	2.738
Min'ap'ls-St. Paul	46	3.036	37	2.738
Duluth, Minn.	52	3.432	41.5	3.071
Mankato, Minn.	46	3.036	37	2.738
Des Moines, Ia.	36	2.376	29	2.146
Davenport, Ia.	39	2.574	31	2.294
Mason City, Ia.	42	2.772	33.5	2.479
St. Louis, Mo.	33	2.178	26.5	1.961
Kansas City, Mo.	28	1.848	22.5	1.665
St. Joseph, Mo.	28	1.848	22.5	1.665
Fargo, N. D.	63	4.158	50.5	3.737
Minot, N. D.	83	5.478	66.5	4.921
Huron, S. D.	53	3.498	42.5	3.145
Wichita				
From Ponca City	7.5	*0.495	7.5	†0.555
From Tulsa	12.5	*0.825	12.5	†0.925
From Cushing	11	*0.726	11	†0.814

*This rate also includes distillate rate at 6.6 lbs. per gal.

**This rate applies only to residual fuel and gas oil. Combination rate of 32c per cwt. at 7.4. Group 3 to Chicago, plus 9c per cwt. at 6.6, Chicago to South Bend, total of 2.962c per gal., applies to petroleum fuel oil distillate not suitable for illuminating purposes.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

(f) Prices FOB Central Michigan refinery group basis for shipment within Michigan: shipments may originate at plants outside Central group. (g) Excluding Detroit shipment. (h) For shipment to Ark. points only. (i) Quotations. (j) Sale. (k) Sales. (l) Pittsburgh district prices excluded.

SEABOARD PRICES EXPORT AND COASTWISE

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

Atlantic Coast

(Prices are of refiners, FOB their refineries & their tanker terminals, & of tanker terminal operators, FOB their terminals)

Prices Effective Aug. 19

MOTOR GASOLINE (ASTM Octane)

District:	72-74 Oct.	68-70 Oct.	65-66 Oct.	60-64 Oct.	KEROSINE and/or NO. 1 FUEL
N. Y. Harb.	5.50 – 6.50	5.50 – 6.00	5.50 – 6.10	6.00–6.25 (2)	5.10
N. Y. Harb., barges	5.25 – 6.50	5.25 – 5.75	5.25 – 6.00	6.00 (2)	5.00
Albany	5.90 – 6.20	.....	.....	.....	5.20 – 5.50
Philadelphia	5.75 – 7.00	6.25 – 6.75	6.25 (1)	5.75 – 6.75	5.00 – 5.75
Baltimore	6.25 – 7.75	6.25 – 6.50	6.25 (1)	6.25 – 6.50	5.00
Norfolk	6.50 – 7.75	6.25 –6.50 (2)	6.25 (1)	6.00–6.25 (2)	5.00 – 5.50
Wilm'ton	6.50 – 7.55	6.25 – 6.50	6.25 (1)	6.00 – 6.50	5.00 – 5.25
Char'ston	6.50 – 7.55	7.00 (1)	6.25 (1)	6.00 – 6.75	5.00 – 5.50
Savannah	6.50 – 6.75	6.25 – 7.00	.....	5.75 – 6.25	5.25 – 5.50
Jacksonville	6.50 – 6.75	6.25 – 6.50	.....	5.75 – 6.25	5.25 – 5.50
Miami	6.50–6.75 (2)	6.50 (1)	.....	5.75–6.25 (2)	5.50 –5.75 (2)
Tampa	6.25 – 6.75	6.00 –6.50 (2)	.....	5.75–6.25 (2)	5.50 – 5.75
Pensacola	6.50–6.75 (1)	.....	.....	6.00–6.25 (1)	5.50–5.625 (1)
Mobile	6.00 – 6.75	6.00 (1)	.....	5.25 – 6.25	5.125– 5.50
Portland	6.00 – 6.30	6.20 (1)	.....	.....	5.30
Boston	5.75 – 6.30	5.75 (1)	5.75 – 6.05	5.75–6.05 (2)	5.20
Providence	5.90 – 6.50	.....	5.65–5.95 (2)	5.65 – 6.00	5.20

FUEL OILS

	No. 2	No. 3	No. 5	No. 6
N. Y. Harb.	4.40	4.40	$1.45 –$1.70	$1.15 –$1.25
N. Y. Harb., barges	4.00 – 4.30	4.30	.....	.....
Albany	4.50 (2)	4.50 (1)	$1.85 (1)	$1.45 (1)
Philadelphia	4.50 – 5.00	4.25 – 5.00	$1.37 –$1.55	$1.15 –$1.25
Baltimore	4.25	4.25	$1.37 (1)	$1.15 –$1.25
Norfolk	4.25 – 4.50	4.25 (1)	.....	$1.25 (2)
Wilmington	4.25	.....	.....	.....
Charleston	4.25 (2)	.....	.....	$1.20 (2)
Savannah	.....	.....	.....	$1.20 (1)
Jacksonville	4.75 (1)	4.75 (1)	.....	$1.20 (1)
Tampa	4.75 (1)	.....	.....	$1.15 (1)
Portland	4.60	4.60	$1.85 (1)	$1.35 –$1.45
Boston	4.50	4.50	$1.55–$1.65 (2)	$1.25
Providence	4.50	4.50	$1.50 –$1.65	$1.25

	Bunker C Fuel Ships' bunkers (Ex Lighterage)	Diesel Oil Ships' bunkers (Ex Lighterage)	Diesel Oil Shore Plants	Gas House 28-34	Gas Oil Gravity
N. Y. harbor	$1.15–$1.25	$1.80 –$1.85	4.40 – 4.60	4.50	
Albany	$1.45 (1)	$1.90	4.50	....	
Philadelphia	$1.15 –$1.25	$1.80 –$1.95	....	....	
Baltimore	$1.15 –$1.25	$1.80	4.25	4.25	
Norfolk	$1.25	$1.80	4.25	4.25	
Charleston	$1.20	$1.80 –$1.90	4.25	4.25	
Savannah	$1.20(1)	$1.90 –$1.995	....	....	
Jacksonville	$1.20	$1.90 –$1.995	....	....	
Tampa	$1.15	$1.90 –$1.995	....	....	
Portland	$1.35 –$1.45	$1.90	4.60	4.70	
Boston	$1.25	$1.80	4.50	4.60	
Providence	$1.25	$1.80	4.50	4.60	

New York Export Lubes

(Penna. Products in bbls. FAS New York)

Prices Effective	Aug. 19	Aug. 12
Bright stock:		
Light, 25 p.t.	19.00–20.50 (2)	19.00–20.50 (2)
Neutral oil:		
200 3 color, 25 p.t.	27.00 (2)	27.00 (1)
150 3 color, 25 p.t.	25.00–25.50 (2)	25.00–25.50 (2)
600 s.r., unfilt.	15.50–16.50 (2)	15.50–16.50 (2)
650 s.r., unfilt.	16.50–18.00 (2)	16.50–18.00 (2)
600 fl. s.r.	17.50–19.00 (2)	17.50–19.00 (2)
630 fl., s.r.	20.00–21.00 (2)	20.00–21.00 (2)

Wax

(A.S.T.M. Tests. Melting points, however, are A.M.P., 3° higher than E.M.P. Export prices, FAS, c.l. Domestic prices, FOB. refr'ies., in bags, c.l., with 0.2c discount allowed for shipment in bulk, except where noted. Scale solid; fully refined slabs in bags)

Prices Effective Aug. 19

	New Orleans Export	N. Y. Domestic	N. Y. Export
Crude Scale:			
124-6 Yellow	2.50 (1)	....	2.50 (1)
122-4 White	....	2.00–2.25	2.00–2.25
124-6 White	2.25–2.50(2)	2.00–2.25	2.00–2.50
Fu'ly Refined:			
123-5	....	5.60	5.60 (2)
125-7	5.60 (1)	5.60	5.60
128-30	6.15 (1)	5.60–5.70(i)	5.60
130-2	6.15 (1)	5.85 (i)	5.85
133-5	6.40 (1)	6.15 (i)	6.15
135-7	7.15 (1)	6.40 (i)	6.40
108-11 White Match	....	....	3.00 (1&j)

Naphtha

Prices Effective Aug. 19	V.M.&P. Naphtha	Mineral Spirits
Baltimore	9.50	8
New York Harbor	8.8–9.5	8.2–9
Philadelphia district	10	8–9
Boston	9.5	9.25 –9.50
Providence	9.5	9.5
†Ohio points, delivered	8.75	*8.25

*This is on rubber solvent.

†Ohio prices are those of S. O. Ohio. Its prices for D.C. naphtha, special Varnolene, Varnolene and Sohio Solvent are same as for V.M.&P.

Pacific Export

(Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

Prices Effective	Aug. 19	Aug. 12
375 e.p. blend, 70 oct.	4.75 – 5.875	4.75 – 5.875
390 e.p. blend, 68 oct.	4.625– 5.75	4.625– 5.75
390 e.p. blend, 66 oct.	4.625–5.625	4.625– 5.625
400 e.p. blend, 63 oct. min.	4.50 – 5.50	4.50 – 5.50
U. S. Motor, under 65 octane	4.50 – 5.375	4.50 – 5.375
38-40 grav. w.w. kero., 150 fire point	4.50 – 5.00	4.50 – 5.00
41-43 grav., w.w. kero.	4.75 – 5.00	4.75 – 5.00
44 grav., w.w. kero	5.00 – 5.50	5.00 – 5.50
Diesel fuel, 24 & above	$1.25 –$1.30	$1.25 –$1.30
Diesel fuel, under 24	$1.15 –$1.25	$1.15 –$1.25
30-34 grav. diesel (gas oil) Pac. Spec. 200	$1.25 –$1.35	$1.25 –$1.35
Grade C fuel, Pac. Spec. 400	$0.60 –$0.65	$0.60 –$0.65
In Ships' Bunkers, or deep tank lots:		
Diesel fuel, Pac. Spec. 200	$1.35 –$1.45	$1.35 –$1.45
Grade C fuel, Pac. Spec. 400	$0.85 –$0.90	$0.85 –$0.90

Pacific Export (Cont'd)

Prices Effective	Aug. 19	Aug. 12
Cased Goods: (Per case)		
U. S. M.	$1.45 –$1.55	$1.45 –$1.55
375-400 e.p. blend, 65 oct. & above	$1.60 –$1.70	$1.60 –$1.70
400 e.p. blend, under 65 oct.	$1.50 –$1.60	$1.50 –$1.60
40-43 grav. w.w. kero., 150 fire point	$1.40 –$1.50	$1.40 –$1.50
Kero., p.w.	$1.30 –$1.45	$1.30 –$1.45

Tanker Rates

(Approximate rates. Cents per bbl.)	Last Paid	Owners Ask
Gulf-N. Atlantic: (not E. of N.Y.)		
Hvy. Crude & fuel, (10 to 19.9 gravity)	20	20
Light Crude, (30 Grav. or Lighter)	18	18
Gasoline	18	18–19
Kerosine	19	19–20
No. 2 Fuel	20	20–21

Gulf Coast

(Prices for sales made or firm offers reliably reported for sales pending in cargoes FOB ship at Gulf for domestic and export for minimum of 20,000 bbls. Prices are by refiners only to other refiners, export agents, or to large tanker terminal operators at the customary trade specifications noted.)

MOTOR GASOLINE (ASTM Octane)

Prices Effective Aug. 19

	60-62 Gravity, 400 e.p.	61-63 Gravity, 390 e.p.	64-66 Gravity, 375 e.p.
72-74 oct. leaded	3.875 –4.75	4.125–4.25	4.25 –4.375
70 oct. unleaded	4.50 –4.75	4.50 –4.75	4.625–4.875
68 oct. unleaded	4.125 –4.75	4.125–4.375	4.25 –4.50
65 oct. unleaded	4.00 –4.625	4.00–4.125	4.125–4.25
60 oct. unleaded	4.00 –4.50	4.00	4.00 –4.125

KEROSINE, GAS & FUEL OILS

	Aug. 19	Aug. 12
41-43 grav. w.w. kero.	4.00	4.00 – 4.625
Gas Oil (Less than ½ of 1% sulfur)		
Below 43 diesel index	3.125– 3.375	3.125– 3.375
43-47 diesel index	3.125– 3.375	3.125– 3.375
48-52 diesel index	3.125– 3.625	3.125– 3.625
53-57 diesel index	3.25 – 3.75	3.25 – 3.75
58 & above	3.75 – 4.125	3.75 – 4.125
No. 2 fuel	3.375– 3.75	3.375– 3.75
Diesel oil, ships' bunkers, ex lighterage	$1.50 –$1.70	$1.50 –$1.70
Grade C, ships' bunkers, ex lighterage	$0.80 –$0.90	$0.80 –$0.90
Grade C cargoes	$0.85 –$0.90	$0.85 –$0.90

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk FOB terminals)

Aug. 19

	New Steel Drums	Bulk
200 vis. D. 210 brt. stock	25.50–25.80 (2)	19.80 (2)
150 vis. D 210 brt. stock 0-10 p.p.	21.50–21.80 (2)	15.80 (2)
10-25 p.p.	21.00 (1)	15.30 (1)
100 vis. D 210 brt. stock 0-10 p.p.	21.00 (1)	15.30 (1)
10-25 p.p.	20.50 (1)	14.80 (1)
200 vis. No. 3 col. neutral:		
0-10 p.p.	17.00 (1)	11.30 (1)

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk. exprt. shp., FOB terminals.)

Unfiltered Pale Oils: Vis. Color	Aug. 19	Aug. 12
100 No. 3	6.00 – 6.50	6.00 – 6.50
200 No. 3	7.50 – 8.50	7.50 – 8.50
300 No. 3	8.00 – 9.00	8.00 – 9.00
500 No. 3½	9.00 –10.50	9.00 –10.50
750 No. 4	9.50 –11.00	9.50 –11.00
1200 No. 4	10.00 –13.50	10.00 –13.50
2000 No. 4	10.25	10.25
Red Oils: Vis. Color		
100 No. 5-6	6.00 – 6.50	6.00 – 6.50
200 No. 5-6	7.50 – 8.50	7.50 – 8.50
300 No. 5-6	8.00 – 9.00	8.00 – 9.00
500 No. 5-6	9.00 –10.50	9.00 –10.50
750 No. 5-6	9.50 –11.00	9.50 –11.00
1200 No. 5-6	10.00 –13.50	10.00 –13.50
2000 No. 5-6	10.25	10.25

(i) Shipment in bags or in bulk. (j) Shipment in tight barrels.

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include* 1.5c *federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for Feb.* 21, 1940.

These prices in effect Aug. 19, 1940 *as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J.	7.6	8.7	4.5	7.7
*Newark, N. J.	7.6	8.7	4.5	7.7
Annapolis, Md.	8.35	9.35	5.5	9.5
Baltimore, Md.	7.75	8.75	5.5	8.5
Cumberland, Md.	9.15	10.15	5.5	10
Washington, D. C.	8	9	3.5	9.5
Danville, Va.	8.95	11.45	6.5	11
Norfolk, Va.	7.75	10.25	6.5	10.5
Petersburg, Va.	8.05	10.55	6.5	11.2
Richmond, Va.	8.05	10.55	6.5	10.5
Roanoke, Va.	9.25	11.75	6.5	11
Charleston, W. Va.	8.55	11.05	6.5	12.6
Parkersburg, W. Va.	7.85	9.85	6.5	11.2
Wheeling, W. Va.	8.85	10.75	6.5	11.8
Charlotte, N. C.	9.9	10	7.5	11.8
Hickory, N. C.	10.45	11.95	7.5	12.3
Mt. Airy, N. C.	10.3	11.8	7.5	12.2
Raleigh, N. C.	9.65	9	7.5	11.5
Salisbury, N. C.	9.95	9	7.5	11.9
Charleston, S. C.	7.75	10.25	7.5	9.25
Columbia, S. C.	8.6	11.1	7.5	11.5
Spartanburg, S. C.	9.3	11.8	7.5	12.2

	Mineral Spirits T.W.	V.M.&P. T.W.
Newark, N. J.	11.5	15.5
Baltimore, Md.	15.5	....
Washington, D. C.	15	....

	Fuel Oils—T.W. No. 1	No. 2	No. 3
Atlantic City, N. J.	7.7	6.4	6.4
Newark	7.7	6.4	6.4
Annapolis, Md.	....	6.25	....
Baltimore	7	6.25	5.75
Washington, D. C.	7.25	6.50	6.50
Norfolk, Va.	7	6	6
Petersburg	7.25	6.25	....
Richmond	7.25	6.25	6.25
Charlotte, N. C.	8.75	7.50	....
Hickory	....	7.75	....
Raleigh	8.75	7.25	....
Charleston, S. C.	8.25	6.75	....
Columbia	9.20	7.70	....
Spartanburg	10.00	8.50	....

*Effective Sept. 14, 1939, minimum retail resale price of 11.9c posted thru New Jersey.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w. price, thru territory, except New Jersey. While above posted prices continue at Atlantic City and Newark, dealers will pay net price of 8.6c per gal. for Esso; dealers having pumps marked only Esso, Esso Extra and Standard White gasoline will pay 8.1c per gal. for Esso.

Kerosine—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

Naphthas—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price; Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

Socony-Vacuum Oil Co., Inc.

Socony Mobilgas (*Regular Grade*)††

	Com. T.C.	Com. Cons. T.W.	Div. Dlr. T.W.	Gasoline Taxes	Kerosine T.W.
New York:					
N.Y.C. (Bors. of Manh'tn, Bronx, Kings & Queens)	6.5	6.5	7.7	*5.5	7.9
Bor. of Richmond (S.I.)	6.5	6.5	7	*5.5	7.9
New York:					
Albany	6.2	6.7	7	5.5	7.6
Binghamton	8.3	8.3	7.9	5.5	9.1
Buffalo	7.1	7.1	8.1	5.5	7.5
Jamestown	7.2	7.2	8.3	5.5	7.4
Plattsburg	6.7	7.8	8.2	5.5	8.2
Rochester	7.6	7.6	8.7	5.5	8.1
Syracuse	7.5	7.5	7.8	5.5	8.5
Conn:					
Bridgeport	6.4	7	6.5	4.5	7.8
Danbury	6.9	7.2	8	4.5	8.5
Hartford	6.5	7.2	7	4.5	7.5
New Haven	6.4	6.7	5.5	4.5	7
Maine:					
Bangor	6.4	7.4	8.4	5.5	8.1
Portland	6	7	8	5.5	7.7
Mass.:					
Boston	6	6.5	6.5	4.5	8
New Hampshire:					
Concord	6.7	7.8	8.8	5.5	8.6
Lancaster	7.5	8.8	9.8	5.5	9.6
Manchester	6.6	7.7	7.5	5.5	8.8
Rhode Island:					
Providence	5.9	6.1	7	4.5	8
Vermont:					
Burlington	6.9	7.7	8.7	5.5	8.2
Rutland	7	8	8.7	5.5	8.6

	Mineral Spirits T.W.	V.M.&P. T.W.
Buffalo, N. Y.	9.5	10.6
†New York City	8.2	8.8
Rochester, N. Y.	10.4	11.4
Syracuse, N. Y.	11.2	12.3
Boston, Mass.	11	11
Bridgeport, Conn.	11.5	12
Hartford, Conn.	11	11.5
Providence, R. I.	11	12

Fuel Oils—T. W.

	Mobilheat & Mobilheat Heavy
New York City	6.3
Albany, N. Y.	6.4
Rochester, N. Y.	6.9
Boston, Mass.	6.4
Bangor, Me.	6.9
Manchester, N. H.	7.2
Burlington, Vt.	7.1
Hartford, Conn.	6.6
New Haven, Conn.	6.6
Providence, R. I.	6.4

*Plus 2% city sales tax computed at time of each sale.

†Prices apply to consumers only in quantities over 1000 gals. annually; for quantities under 1000 gals. annually, add 0.5c per gal.

††Same prices apply for No. 1 fuel.

Discounts: Gasoline—To undivided dealers, 0.5c less than divided dealer t.w.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial T.C.	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	7	8.5	5.5	10.5
Pittsburgh	8	9.5	5.5	10.5
Allentown	8	9.5	5.5	10.5
Erie	8	9.5	5.5	10
Scranton	7	8.75	5.5	10.5
Altoona	8	10	5.5	10.5
Emporium	8	10	5.5	10.5
Indiana	8	10	5.5	10.5
Uniontown	8	10	5.5	10.5
Harrisburg	8	9.5	5.5	10.5
Williamsport	8	9.5	5.5	10
Dover, Del.	....	8.5	5.5	10.5
Wilmington	....	8.5	5.5	10
Boston, Mass.	....	6.5	4.5	8.2
Springfield, Mass.	....	6.9	4.5	8.7
Worcester, Mass.	....	7.3	4.5	8.1
Fall River, Mass.	....	7.7	4.5	8.2
Hartford, Conn.	....	7	4.5	8.2
New Haven, Conn.	....	5.5	4.5	8.2
Providence, R. I.	....	7.4	4.5	8.2
Atlantic City, N. J.	....	8.6	4.5	8.4
Camden, N. J.	....	8.6	4.5	8.1
Trenton, N. J.	....	8.6	4.5	8.4
Annapolis, Md.	....	9.35	5.5	10
Baltimore, Md.	....	8.75	5.5	9
Hagerstown, Md.	....	9.85	5.5	10
Richmond, Va.	....	10.55	6.5	10.5
Wilmington, N. C.	....	10.35	7.5	10.8
Brunswick, Ga.	....	8	7.5	*9
Jacksonville, Fla.	....	6	8.5	10

	Mineral Spirits T.W.†	V.M.&P. T.W.†
Philadelphia, Pa.	12	14.5
Lancaster, Pa.	13.5	16
Pittsburgh, Pa.	14.5	14.5

	Fuel Oils—T.W. 1	2	3	4	5	6
Phila., Pa.	8.5	6.5	6.5	6.5	4.25	3.50
Allentown, Pa.	8.5	6.5	6.5	6.5	....	....
Wilmington, Del.	8.00	6.5	6.5	6.5	....	....
Springfield, Mass.	8.7	6.8	....	....	....	....
Worcester, Mass.	8.1	6.7	....	6.7	....	....
Hartford, Conn.	8.2	6.6	....	6.6	....	....

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same. At Scranton, Pa., 1c per gal. voluntary discount allowed to dealers only.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

Naphthas—Philadelphia, 200 gals. or more at one time, 2c off Lancaster, contract buyers taking 1000 gals. or more per year, one drum up, 2c off; non-contract buyers, 200 gals. or more at one time, 2c off. Pittsburgh, 500 gals. or more at one time, 2c off.

S. O. Ohio

***Sohio X-70 Gasoline (*Regular Grade*)**

	Consumer T.W.	Divided Dlr.	‡S.S.	Gasoline Taxes	†Kerosine T.W.
Ohio, Statewide	10.5	9.5	12.5	5.5	8
Akron	10.5	8	9.5	5.5	8
Cincinnati	10.5	9	11.5	5.5	8
Cleveland	10.5	8.5	11	5.5	8
Columbus	10.5	8.5	11	5.5	8

S. O. Ohio (Cont'd)

Dayton	10.5	8	10	5.5	8
Marietta	10.5	9	11	5.5	8
Portsmouth	10.5	9.5	12.5	5.5	8
Toledo	10.5	8	10	5.5	8
Youngstown	10.5	8.5	11	5.5	7.5

Esso Aviation Gasoline—Thru Ohio

	Consumer T.W.	Gasoline Taxes
74 octane	15.5	5.5
80 octane	16.5	5.5
87 octane	17.5	5.5

†Naphthas — Statewide	T.W.
S.R. Solvent	12.75
D.C. Naphtha	13.25
V.M.&P. Naphtha	13.25
Varnolene	13.25
Sohio Solvent	13.25

††Fuel Oils—T.W.

	No. 1	No. 2	No. 3
Toledo	7.00	7.00	6.50
Rest of Ohio	7.50	7.50	7.00

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

†Kerosine prices are ex 1c state tax. Naphtha prices are ex 1.5c federal & 4c state tax.

‡Prices at company-operated stations.

††Prices are for full compartment hose dumps; bucket dumps are 0.5c per gal. higher.

Discounts:

X-70 gasoline—to undivided dealers, 0.5c off dealer t.w.

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Naphthas—to contract consumers off t.w. prices: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c.

S. O. Kentucky

Crown Gasoline (*Regular*)
Standard (*Third Grade*)

	†Net Dealer Crown	Standard	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	8.5	7.5	6.5	9.5
Lexington, Ky.	8	6	6.5	9.5
Louisville, Ky.	8.5	6.5	6.5	9
Paducah, Ky.	9	8	6.5	9
Jackson, Miss.	9	8	7.5	*8.5
Vicksburg, Miss.	9	8	7.5	*8.5
Birmingham, Ala.	9	8	*8.5	9
Mobile, Ala.	8	6	*9.5	8
Montgomery, Ala.	9	7.5	*9.5	*9
Atlanta, Ga.	8.5	7	7.5	*9
Augusta, Ga.	10	9	7.5	*9
Macon, Ga.	9.5	6.5	7.5	*8
Savannah, Ga.	9	8	7.5	*8
Jacksonville, Fla.	6	6	8.5	8
Miami, Fla.	6	5.5	8.5	8
Pensacola, Fla.	8	7	*9.5	8.5
Tampa, Fla.	7.5	7	8.5	8

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax, Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices except at Tampa. Tampa consumer t.w. prices are Crown 10.5c, Standard 9.5c.

Discounts:

Gasoline—Tampa: Temporary discount of 3c on Crown, 2.5c on Standard, off Consumer T.W. prices which see above.

S. O. Indiana

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Crown	Dealer Prices Cons. T.W.	Red Crown	Stanolind	Gasoline Taxes	Kerosine T.W.
Chicago, Ill.	11.1	9.1	6.9	4.5	10	
Decatur, Ill.	10.1	8.6	8.1	4.5	9.5	
Joliet, Ill.	11.1	9.6	8.1	4.5	10	
Peoria, Ill.	11.1	8.7	8.1	4.5	10	
Quincy, Ill.	10.9	9.4	7.6	4.5	9.8	
Indianapolis, Ind.	11.8	9.3	8.9	5.5	*10.2	
Evansville, Ind.	11.6	10.1	9.1	5.5	*10.5	
South Bend, Ind.	11.8	10.3	8.8	5.5	*10.2	
Detroit, Mich.	9.6	8.1	7.1	4.5	7.6	
Grand Rapids, Mich.	9.2	7.2	7.2	4.5	9	
Saginaw, Mich.	8.2	8.7	8.2	4.5	9.3	
Green Bay, Wis.	11.9	10.4	9.9	5.5	10.3	
Milwaukee, Wis.	11.3	9.8	9.3	5.5	10.2	
La Crosse, Wis.	11.5	10	9.5	5.5	10.4	
Minneapolis-St. Paul	11.5	9.7	9.2	5.5	10.4	
Duluth, Minn.	11.9	10.4	9.9	5.5	10.8	
Mankato, Minn.	11.5	10	8.5	5.5	9	
Des Moines, Ia.	10.9	9.4	7.9	4.5	*9.8	
Davenport, Ia.	11.1	9.6	8.4	4.5	*10	
Mason City, Ia.	11.3	9.8	7.4	4.5	*10.2	
St. Louis, Mo.	10.7	8.7	7.5	*4.5	8	
Kansas City, Mo.	10.4	8.9	6.9	*4.5	8	
St. Joseph, Mo.	10.4	8.0	7.5	*4.5	7.9	
Fargo, N. D.	12.7	11.2	9.3	5.5	11.6	
Huron, S. D.	12	10.5	10	5.5	10.9	
Wichita, Kans.	9.3	7.6	5.5	4.5	7	

(Continued on next page)

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NP N for Feb. 21, 1940. These prices in effect Aug. 19, 1940 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. Indiana (Cont'd)

Stanavo Aviation 73 Octane

Chicago, Ill.	14.9	
Detroit, Mich.	16.5	4.5
Milwaukee, Wis.	15.1	5.5
Minneapolis, Minn.	15.3	5.5
St. Louis, Mo.	14.5	3.5
Kansas City, Mo.	14.2	*4.5
Fargo, N. D.	16.5	5.5
Huron, S. D.	15.8	5.5

	Oleum Spirits	V.M.&P. Naphtha	Stanisol	*Taxes
	(Prices are base prices before discounts)			
Chicago	12.7	13	12.4	4.5
Detroit	15.2	14.2	15.7	4.5
K. C., Mo.	12.9	13.9	13.4	1.5
St. Louis	13.2	14.2	12.4	1.5
Milwaukee	13.8	14.8	14.3	5.5
Minneap'ls	14	15	12.7	5.5

†Fuel Oils—T.W.	No. 1 Fuel	Stanolex Furnace
Chicago	**6.50	6.50
Indianapolis	....	*7.5
Detroit	....	6.6
Milwaukee	8.2	7.7
Minneapolis	7.5	7.5
St. Louis	7.0	6.50
Kansas City	6.8	6.8

*Taxes: In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 4c state tax; Iowa kerosine prices are ex 3c state tax. In naphtha tax column are included 1c federal tax and state taxes.

†Prices for small-lot deliveries range up to 2c higher than above prices.

**For 400 gals. & over; 150 to 399 gals., 7.25c; 1 to 149 gals., 8.25c.

S. O. Nebraska

Standard Red Crown Gasoline (*Regular Grade*)

	T.W.	Dealer	Gasoline Taxes	Kerosine T.W.
Omaha	10.5	9.4	6.5	9.0
McCook	11	7.9	6.5	9.5
Norfolk	11	8.9	6.5	9.9
North Platte	11.3	8.5	6.5	10.2
Scottsbluff	11.9	9	6.5	10.5

S. O. Louisiana

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Little Rock, Ark.	7.25	8.5	8	10
Alexandria, La.	6.75	9.25	8.5	*9.5
Baton Rouge, La.	6.75	9.25	8.5	*9.5
New Orleans, La.	5.75	8.25	8.5	*9
Lake Charles, La.	6.75	9.25	8.5	*9
Shreveport, La.	5.5	8	8.5	*8
Lafayette, La.	7	9.5	8.5	*9
Bristol, Tenn.	10.25	9.50	8.5	12
Chattanooga, Tenn.	9.5	7.25	8.5	12
Knoxville, Tenn.	10	11.5	8.5	12.5
Memphis, Tenn.	8	9.5	8.5	11
Nashville, Tenn.	9	9.5	8.5	11.5

*New Orleans kerosine price is ex 1c parish tax, and all Louisiana kerosine prices are ex 1c state tax.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w.

Humble Oil & Refining Co.

Humble Motor Fuel (*Regular Grade*)

	Tank Truck	Retail	Gasoline Taxes	Kerosine T.W
Dallas, Tex.	6	10	5.5	6
Ft. Worth, Tex.	6	10	5.5	7
Houston, Tex.	7	11	5.5	8
San Antonio, Tex.	7	11	5.5	8

Thriftane

(Leaded, 67 Octane, Purple Gasoline)

Dallas	5	8	5.5
Ft. Worth	5	8	5.5
Houston	5	8	5.5
San Antonio	5	8	5.5

74 Octane Aviation Gasoline, Clear

	Tank Car
FOB Baytown, Tex.	8.5

*To all classes of dealers & consumers.

The Texas Co.

	Gasoline—Dealer T.W. Fire-Chief (*Regular*)	Indian (*3rd Grade*)	Gasoline Taxes
Dallas, Tex.	6	5	5.5
Ft. Worth, Tex.	6	5	5.5
Wichita, Falls, Tex.	7	5	5.5
Amarillo, Tex.	7	5	5.5
Tyler, Tex.	7	5	5.5
El Paso, Tex.	8	7	5.5
San Angelo, Tex.	7	5	5.5
Waco, Tex.	6.5	4.5	5.5
Austin, Tex.	7	5	5.5
Houston, Tex.	7	5	5.5
San Antonio, Tex.	7	5	5.5
Port Arthur, Tex.	8.5	5	5.5

Continental Oil

	Conoco Bronz-z-z (*Regular*) T.W.	Demand (*3rd Grade*) T.W.	Gasoline Taxes	Kerosine T.W.
Denver, Col.	8	7	5.5	10.5
Grand Junction, Col.	12	11	5.5	12.5
Pueblo, Col.	10	8	5.5	9
Casper, Wyo.	11	10	5.5	11.5
Cheyenne, Wyo.	9	8	5.5	11
Billings, Mont.	11	10	6.5	12
Butte, Mont.	9	8	6.5	13
Great Falls, Mont.	11	9	6.5	12
Helena, Mont.	9	8	6.5	12.5
Salt Lake City, Utah	10.5	9.5	5.5	14
Boise, Ida.	*14.1	*13.1	6.5	16
Twin Falls, Ida.	*15.1	*14.1	6.5	16.5
Albuquerque, N. M.	9	8	*7	9.5
Roswell, N. M.	7	6	*7	8
Santa Fe, N. M.	9.5	8.5	*7.5	9.5
Ft. Smith, Ark.	9.5	6.25	5.5	7
Little Rock, Ark.	9.25	7.5	8	8
Texarkana, Ark.	8	5	5.5	7
Muskogee, Okla.	8	7	5.5	7
Oklahoma City, Okla.	6	5.5	5.5	6.5
Tulsa, Okla.	7	6	5.5	6

Conoco Special Gasoline (Aviation)

	T.W.	Gasoline Taxes
Denver, Colo.	15	5.5
Cheyenne, Wyo.	15.5	5.5
Helena, Mont.	22.5	6.5
Salt Lake City, Utah	18	5.5
Albuquerque, N. M.	14	*7

*Taxes: In gasoline tax column are included these city taxes—Albuquerque and Roswell, 0.5c; Santa Fe 1c. Idaho prices include 0.1c to cover 1-mill tax for toll bridges.

S. O. California

Standard Gasoline (*Regular Grade*)

	Tank Truck	Retail	Gasoline Taxes	Kerosine T.W.
San Francisco, Cal.	12	13	4.5	11.5
Los Angeles, Cal.	11.5	12.5	4.5	10
Fresno, Cal.	13	14	4.5	12.5
Phoenix, Ariz.	14	15	6.5	*12.5
Reno, Nev.	14	15	5.5	13.5
Portland, Ore.	12.5	13.5	6.5	13.5
Seattle, Wash.	12.5	13.5	6.5	13.5
Spokane, Wash.	14	15	6.5	16.5
Tacoma, Wash.	12.5	13.5	6.5	13.5

Flight Gasoline (*Third Grade*)

San Francisco, Cal.	10	11	4.5	....
Los Angeles, Cal.	9.5	10.5	4.5	....
Fresno, Cal.	11	12	4.5	....
Reno, Nev.	12	13	5.5	....
Phoenix, Ariz.	11	12	6.5	....
Portland, Ore.	10.5	11.5	6.5	....
Seattle, Wash.	10.5	11.5	6.5	....
Spokane, Wash.	12	13	6.5	....
Tacoma, Wash.	10.5	11.5	6.5	....

Stanavo Aviation Gasoline

Phoenix, Ariz.	17.5	..	6.5	....
Los Angeles, Cal.	15	..	4.5	....
San Francisco, Cal.	15.5	..	4.5	....
Reno, Nev.	17.5	..	5.5	....
Portland, Ore.	16	..	6.5	....
Seattle, Wash.	16	..	6.5	....
Spokane, Wash.	19	..	6.5	....

*Taxes: Arizona kerosine prices are ex 5c state tax.

Discounts:

To 100% dealers—3c off t.w. on Standard and Stanavo Aviation; 2c off t.w. on Flight.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-Star Imperial Gasoline (*Regular Grade*)

	T.W.	Gasoline Taxes	Kerosine T.W.
Hamilton, Ont.	16	8	16.50
Toronto, Ont.	16	8	16.50
Brandon, Man.	21	7	22.50
Winnipeg, Man.	20	7	21.50
Regina, Sask.	18	7	20
Saskatoon, Sask.	21	7	23
Edmonton, Alta.	18	7	20
Calgary, Alta.	16	7	18
Vancouver, B. C.	16	7	23
Montreal, Que.	16	8	16.5
St. John, N. B.	14.50	10	18
Halifax, N. S.	14.50	10	18

Discounts: To undivided dealers, 1c off t.w. price, except Maritime Provinces where undivided dealers pay t.w. price, and except Vancouver, B. C. where both divided and undivided dealers get 2c off t.w. price. Divided dealers pay t.w. price thru territory.

Price Changes

(These changes have been made in price tables)

Socony-Vacuum—Mobilgas:

Providence divided dealer t. w. cut 0.4c, Aug. 7.

S. O. Ohio—Sohio X-70:

Dayton divided dealer and s. s. cut 0.5c, Aug. 14.

S. O. Indiana—Red Crown:

Minneapolis-St. Paul dealer up 1.2c, Aug. 9.

S. O. Indiana—Stanolind:

Minneapolis-St. Paul dealer up 1.7c, Aug. 9.

Quincy dealer cut 0.3c, Aug. 16.

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Customs Bureau Gives Import Quota Figures

WASHINGTON—U. S. Bureau of Customs announced preliminary figures on imports of crude petroleum and fuel oil within quota limitations provided under trade agreements, covering the period January 1 to June 29, 1940, as follows:

	Established quota for Calendar year (in gallons)	Imports as of June 29, 1940
Venezuela	1,869,014,616	673,058,056
Netherlands	527,691,192	356,157,833
Colombia	103,978,560	7,655,677
Others (Mostly Mexico)	98,779,632	Tariff rate quota filled

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN & CENTRAL STATES FIELDS

PENNSYLVANIA GRADE

Posted by Jos. Seep Purch. Agency (July 12, 1940)

Bradford-Allegany $2.00
Southwest Penna $1.65
Eureka (West Va.) $1.59
Corning, O. (Nov. 4, 1939) $1.12

Posted by Tide Water Assoc. Oil Co. (July 12, 1940)

Bradford-Allegany $2.00

Posted by The Pennzoil Co. (July 12, 1940)

National Transit $1.93*

Posted by Valvoline Pipe Lines (July 12, 1940)

Bradford (Elk & McKean Counties, Pa.) $2.00
Warren, Forest, Venango, Clairon & Butler Counties, Pa $1.93
Allegheny, Beaver, Washington & Greene Counties, Pa $1.65
West Virginia $1.59
South Eastern Ohio $1.55

*Applies to Cochran, Franklin, Hamilton & Doolittle districts; prices in other lower districts range down to $1.88 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co. (Oct. 9, 1939)

Midland, Midland County $1.02
Sherman $0.97
Clare-Freeman $0.97

Posted by Simrall Corp. (Oct. 9, 1939)

Crystal, Greendale, Porter, Vernon and Wise $1.02
Beaverton, Buckeye, Bentley, Edenville $1.00
Freeman and Redding $0.97
Arenac $0.82
West Branch (Nov. 1, 1939) $0.85

Posted by Sohio Corp. (Michigan Division)

Allegan & Kent Counties (April 27, 1940) $1.08
Van Buren County (May 1, 1940) $1.08

Posted by Bay Pipe Line Corp. (Oct. 9, 1939)

Bentley and Buckeye $1.00
Saginaw and Wise $1.02
Clare $0.76

ILLINOIS-INDIANA-KENTUCKY

Posted by Ohio Oil Co. (June 8, 1939)

Illinois and Western Indiana $0.95
Illinois Basin $1.05

Posted by Sohio Corp.

Illinois Basin:
Salem (Lake Centralia) (Oct. 21, 1939) $1.05
Balance of Illinois Basin (June 8, 1939) $1.05
Griffin (So. Ill.-Ind.) pool (Aug. 1, 1940) $1.05

Posted by Carter Oil Co. (June 10, 1939)

Louden, Fayette County, Ill. $1.05

Posted by Mohawk Oil Lines, Inc. (Aug. 1, 1940)

Southern Ill. heavy $0.95
Light $1.05

Posted by Ashland Oil & Transportation Co. (June 9, 1939)

Somerset Oil in Ashland Lines, Kentucky:
Big Sandy River $1.02
Kentucky River $1.10

Posted by Sohio Corp. (Aug. 1, 1940)

Birk City, Ky. Area $0.95
Corydon, Ky. Area (Henderson) $0.95

Posted by Owensboro-Ashland Co.

Owensboro, Ky. Area (June 9, 1939) $1.00

CANADIAN FIELDS

Posted by Imperial Oil Limited Western Ontario (Nov. 6, 1939)

Petrolia $2.10
Oil Springs $2.17

Turner Valley (Prices FOB producer's tankage)

Crude Oil (July 18, 1940)

33-33.9 ... $1.05	44-44.9 ... $1.27	55-55.9 ... $1.49
34-34.9 ... 1.07	45-45.9 ... 1.29	56-56.9 ... 1.51
35-35.9 ... 1.09	46-46.9 ... 1.31	57-57.9 ... 1.53
36-36.9 ... 1.11	47-47.9 ... 1.33	58-58.9 ... 1.55
37-37.9 ... 1.13	48-48.9 ... 1.35	59-59.9 ... 1.57
38-38.9 ... 1.15	49-49.9 ... 1.37	60-60.9 ... 1.59
39-39.9 ... 1.17	50-50.9 ... 1.39	61-61.9 ... 1.61
40-40.9 ... 1.19	51-51.9 ... 1.41	62-62.9 ... 1.63
41-41.9 ... 1.21	52-52.9 ... 1.43	63-63.9 ... 1.65
42-42.9 ... 1.23	53-53.9 ... 1.45	64 & over. 1.67
43-43.9 ... 1.25	54-54.9 ... 1.47	

Crude Naphtha (Jan. 5, 1938)

65 gravity & above $2.14

Absorption Gasoline (Jan. 5, 1938)

90% Rec., 20 lb. Reid v.p. $1.94
90% Rec., 17 lb. Reid v.p. $2.08

*MID-CONTINENT—Oklahoma-Kansas

	S. O. Indiana	Carter Mag-nolia Shell	Conti-nental Texas Co.	Sin-clair Prairie
Below 21°	$0.70	$0.60	....	....
21-21.9	.72	.63	....	....
22-22.9	.74	.66	....	....
23-23.9	.76	.69	....	....
24-24.9	.78	.72	....	....
25-25.9	.80	.75	....	$0.58
26-26.9	.82	.78	....	.63
27-27.9	.84	.81	....	.68
28-28.9	.86	.84	$0.86	.73
29-29.9	.88	.87	.88	.78
30-30.9	.90	.90	.90	.82
31-31.9	.92	.92	.92	.86
32-32.9	.94	.94	.94	.90
33-33.9	.96	.96	.96	.96
34-34.9	.98	.98	.98	.98
35-35.9	1.00	1.00	1.00	1.00
36-36.9	1.02	1.02	1.02	1.02
37-37.9	1.04	1.04	1.04	1.04
38-38.9	1.06	1.06	1.06	1.06
39-39.9	1.08	1.08	1.08	1.08
40 & above	1.10	1.10	1.10	1.10

*Effective in 1938 by Carter Oil, Oct. 13, posting in Okla. only; Continental Oil, Oct. 11, with lowest grade below 29; Magnolia, Oct. 12, posting in Okla. only; Shell, Oct. 22; S. O. Indiana, Oct. 17; The Texas Co., Oct. 12. Aug. 31, 1939, by Sinclair-Prairie.

*North-North Central and Central Texas

	Stano-lind	Sinclair Texas Co. Conti-nental Magnolia
Below 21°	$0.60	....
21-21.9	.62	....
22-22.9	.64	....
23-23.9	.66	....
24-24.9	.68	$0.79
25-25.9	.70	for
26-26.9	.72	oil
27-27.9	.74	below
28-28.9	.76	29°.
29-29.9	.78	.81
30-30.9	.80	.83
31-31.9	.82	.85
32-32.9	.84	.87
33-33.9	.86	.89
34-34.9	.88	.91
35-35.9	.90	.93
36-36.9	.92	.95
37-37.9	.94	.97
38-38.9	.96	.99
39-39.9	.98	1.01
40 & above	1.00	1.03

*Effective Oct. 11, 1938 by Continental, in North Tex.; Oct. 12, 1938, by Texas Co. in North & North Central Texas. Texas Co.'s lowest grade is 28-28.9, at $0.79; by Magnolia, Dec. 3, 1938, in N. and N. Central Texas; July 16, 1940, by Sinclair-Prairie in Mexia & North Central Texas.

Jefferson County, Texas—Beaumont

(Posted by Magnolia Petroleum Co., Effective Oct. 2, 1939, and by Stanolind Oil & Gas Co., for West Beaumont, Effective Oct. 2, 1939)

Below 20°	$0.86	30-30.9	$1.08
20-20.9	.88	31-31.9	1.10
21-21.9	.90	32-32.9	1.12
22-22.9	.92	33-33.9	1.14
23-23.9	.94	34-34.9	1.16
24-24.9	.96	35-35.9	1.18
25-25.9	.98	36-36.9	1.20
26-26.9	1.00	37-37.9	1.22
27-27.9	1.02	38-38.9	1.24
28-28.9	1.04	39-39.9	1.26
29-29.9	1.06	40 & above	1.28

TEXAS FIELDS

Posted by Humble Oil & Refining Co.

***West Central Texas (Aug. 11, 1939)**

24-24.9	$0.71	33-33.9	$0.89
25-25.9	.73	34-34.9	.91
26-26.9	.75	35-35.9	.93
27-27.9	.77	36-36.9	.95
28-28.9	.79	37-37.9	.97
29-29.9	.81	38-38.9	.99
30-30.9	.83	39-39.9	1.01
31-31.9	.85	40 & above	1.03
32-32.9	.87		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young Counties.

Effective Aug. 29, 1939, Shell posted in Fisher county, Tex., prices 3c lower than Humble's West Central Texas prices; Shell's schedule begins with below 25, at $0.68 and ends with 40 & above, at $1.

Note: Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

***East Central Texas (Aug. 11, 1939)**

23-23.9	$0.78	32-32.9	$0.96
24-24.9	.80	33-33.9	.98
25-25.9	.82	34-34.9	1.00
26-26.9	.84	35-35.9	1.02
27-27.9	.86	36-36.9	1.04
28-28.9	.88	37-37.9	1.06
29-29.9	.90	38 38.9	1.08
30-30.9	.92	39-39.9	1.10
31-31.9	.94	40 and above	1.12

Posted by Pan American Pipe Line Co.
(Oct. 2, 1939)

Cayuga, Anderson county $0.78

*Including Anderson, Cherokee, Limestone, Navarro counties.

PANHANDLE TEXAS

	Humble (Aug. 11, 1939)		Texas Co. (Oct. 2, 1939)	
	Gray County	Carson Hutchin-son	Sweet	Sour
28-28.9	$0.72	$0.67	....	....
29-29.9	.74	.69	....	....
30-30.9	.76	.71	....	....
31-31.9	.78	.73	....	....
32-32.9	.80	.75	....	....
33-33.9	.82	.77	....	....
34-34.9	.84	.79	$0.84	$0.79
35-35.9	.86	.81	.86	.81
36-36.9	.88	.83	.88	.83
37-37.9	.90	.85	.90	.85
38-38.9	.92	.87	.92	.87
39-39.9	.94	.89	.94	.89
40 & above	.96	.91	.96	.91

Effective Aug. 31, 1939, Sinclair Prairie met Humble in Panhandle Texas. Dec. 3, 1938, Magnolia posted same schedule as Humble.

***EAST TEXAS**

By Humble, Shell, Sinclair-Prairie, Stanolind, Gulf, Magnolia, Texas Co., Tide Water-Associated $1.10

*Effective dates: Aug. 11, 1939, by Humble and Tide Water-Associated; Aug. 29, 1939, by Stanolind; Oct. 2, 1939 by Sinclair Prairie; Oct. 5, 1939 by Shell; Oct. 12, 1938, by Magnolia, Texas Co.; Oct. 13, 1938, by Gulf.

*Includes Cherokee, Gregg, Rusk, Smith and Upshur counties.

Posted by Shell Oil Co., Inc. (Oct. 5, 1939)

Polk County, Tex. (Livingston area) $1.10

NORTHEAST TEXAS

(Posted by Humble, Oct. 2, 1939)

Talco $0.65

(Posted by Magnolia, Oct. 12, 1938)

Cass County and Panola County, Tex.:
Magnolia posts below 25° at $0.73, plus 2c differential for each degree, to top grade of 40 & above, at $1.05.

(Posted by The Texas Co., Oct. 12, 1938)

Cass County $1.05

(a) WEST TEXAS and NEW MEXICO

	Humble	Stano-lind	Shell	Texas Co. Sinclair (c)
Below 20°	$0.53	....	$0.53	....
20-20.9	.55	....	.55	....
21-21.9	.57	....	.57	....
22-22.9	.59	$0.67	.59	....
23-23.9	.61	for	.61	....
24-24.9	.63	oil	.63	....
25-25.9	.65	Below	.65	$0.65
26-26.9	.67	26°.	.67	.67
27-27.9	.69	.69	.69	.69
28-28.9	.71	.71	.71	.71
29-29.9	.73	.73	.73	.73
30-30.9	.75	.75	.75	.75
31-31.9	.77	.77	.77	.77
32 32.9	.79	.79	.79	.79
33-33.9	.81	.81	.81	.81
34-34.9	.83	.83	.83	.83
35-35.9	.85	.85	.85	.85
36-36.9	.87	.87	.87	.87
37-37.9	.89	.89	for	for
38-38.9	.91	.91	oil	oil
39-39.9	.93	.93	36° &	36° &
40 & above	.95	.95	above.	above.

Posted by Magnolia Petroleum Co.

(Oct. 12, 1938 in West Texas;
Oct. 15, 1939 in Lea County, N. Mex.)

	West Texas	N. Mex.		West Texas	N. Mex.
Below 25.	$0.63	$0.63	33-33.9 ...	$0.81	$0.81
25-25.9 ...	.65	.65	34-34.9 ...	.83	.83
26-26.9 ...	.67	.67	35-35.9 ...	.85	.85
27-27.9 ...	.69	.69	36-36.9 ...	.87	.87
28-28.9 ...	.71	.71	37-37.9 ...	.89	for
29-29.9 ...	.73	.73	38-38.9 ...	.91	oil
30-30.9 ...	.75	.75	39-39.9 ...	.93	36 &
31-31.9 ...	.77	.77	40 & over.	.95	above
32-32.9 ...	.79	.79			

Note: Magnolia's West Texas postings are in Crane, Glasscock, Howard, Mitchell, Upton and Winkler counties.

Pecos County, West Texas

(Posted by Humble Aug. 11, 1939 and Shell, Aug. 29 '39)

Pecos $0.78
Yates Shallow Pool (Shell only) ..... .65

Posted by Sinclair Prairie Oil Marketing Co.

(Aug. 31, 1939)

Eddy county, N. Mex. $0.77

(a) Effective Aug. 11, 1939 by Humble; Shell Oil, Aug. 29, 1939; by The Texas Co., Oct. 12, 1938; Stanolind, Aug. 29, 1939; Sinclair Prairie, Aug. 31, 1939.

(c) Texas Co. posts $0.65 for below 26; Sinclair Prairie, $0.63 for below 25.

Note: Humble's postings are in these counties: Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler and Yoakum, West Texas; and Lea county, N. Mex.; Shell, in Crane, Ector, Glasscock, Howard, Upton, Winkler, Yoakum, Lea; Stanolind in Hendrick and Henderson field, Winkler county; Texas Co. in Ward, Winkler and Lea

Posted by Continental Oil Co. **(Oct. 11, 1938)**

Artesia, Jackson and Maljamar pools, New Mexico; gravity schedule beginning with below 29, at $0.61; 29-29.9, at $0.63; plus 2c differential for each gravity, up to 40 & above, at $0.85.

COLORADO

Posted by Continental Oil Co. (Oct. 11, 1938)

	Ft. Collins and Wellington		Wellington
Below 29	$0.81	35-35.9	$0.95
29-29.9	.83	36-36.9	.97
30-30.9	.85	37-37.9	.99
31-31.9	.87	38-38.9	1.01
32-32.9	.89	39-39.9	1.03
33-33.9	.91	40 & above	1.05
34-34.9	.93		

Canon City and Florence, Col. $0.90

SOUTH AND SOUTHWEST TEXAS

All Shown Below Posted by Humble Oil & Refining Co. (Aug. 11, 1939)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski crudes $0.96
Van crude $0.93
Conroe $1.27

(Oct. 2, 1939)

Flour Bluff and Jim Wells County $1.23

(Sept. 14, 1939)

Hardin, Liberty county $1.10

Oct. 12, '38, Magnolia posted $0.96 in Darst Creek; $0.87 in Luling; $0.99 in Lytton Springs; $1.14 for Cleveland, and $1.02 in Hardin, both in Liberty county, Tex.

Oct. 12, '38, The Texas Co. posted $0.96 in Darst Creek.

(Continued on next page)

CRUDE OIL PRICES

(Continued from preceding page)

***Anahuac-Dickinson** (Oct. 2, 1939)

Below 20°	$0.81	30-30.9	$1.03
20-20.9	.83	31-31.9	1.05
21-21.9	.85	32-32.9	1.07
22-22.9	.87	33-33.9	1.09
23-23.9	.89	34-34.9	1.11
24-24.9	.91	35-35.9	1.13
25-25.9	.93	36-36.9	1.15
26-26.9	.95	37-37.9	1.17
27-27.9	.97	38-38.9	1.19
28-28.9	.99	39-39.9	1.21
29-29.9	1.01	40 & above	1.23

*Anahuac-Dickinson includes Cedar Point, Fairbanks, Gillock, Hull, Pierce Junction and Raccoon Bend (shallow sand) and Turtle Bay.

Raccoon Bend (Deep sand crude) Tomball and Satsuma (Aug. 11, 1939)

22-22.9	$0.95	32-32.9	$1.15
23-23.9	.97	33-33.9	1.17
24-24.9	.99	34-34.9	1.19
25-25.9	1.01	35-35.9	1.21
26-26.9	1.03	36-36.9	1.23
27-27.9	1.05	37-37.9	1.25
28-28.9	1.07	38-38.9	1.27
29-29.9	1.09	39-39.9	1.29
30-30.9	1.11	40 & above	1.31
31-31.9	1.13		

Dec. 3, 1938, Magnolia posted above price and gravity schedule in Tomball. Effective Aug. 29, 1939, Stanolind met Humble in Tomball, except that Stanolind's schedule begins with below 29 at $1.07.

LOUISIANA-ARKANSAS

Posted by Standard Oil Co. of Louisiana

(†) (For effective dates, see footnote)

	*N. La.-Ark. Sweet	Bunkie-Eola, La.	*South La. Sour	*Ark. Sour	Baton Rouge-University
Below 20°	....	....	....	....	$0.79
20-20.9	$0.73	$0.83	‡$0.74	$0.63	.82
21-21.9	for	for	.77	for	.85
22-22.9	oil	oil	.80	oil	.88
23-23.9	Below	Below	.83	Below	.91
24-24.9	25°.	25°.	.86	25°.	.94
25-25.9	.75	.85	.89	.65	.97
26-26.9	.77	.87	.92	.67	1.00
27-27.9	.79	.89	.94	.69	1.02
28-28.9	.81	.91	.96	.71	1.04
29-29.9	.83	.93	.98	.73	1.06
30-30.9	.85	.95	1.00	.75	1.08
31-31.9	.87	.97	1.02	.77	1.10
32-32.9	.89	.99	1.04	.79	1.12
33-33.9	.91	1.01	1.06	.81	1.14
34-34.9	.93	1.03	1.08	.83	1.16
35-35.9	.95	1.05	1.10	.85	1.18
36-36.9	.97	1.07	1.12	.87	1.20
37-37.9	.99	1.09	1.14	.89	1.22
38-38.9	1.01	1.11	1.16	.91	1.24
39-39.9	1.03	1.13	1.18	.93	1.26
40 & above	1.05	1.15	1.20	.95	1.28

(Aug. 30, 1939)

Smackover, Ark.	$0.73
Cotton Valley Distillate	$1.20

*N. La.-Ark. Sweet includes Caddo, Cotton Valley, Cross Lake, De Soto, Haynesville, Homer, Rodessa, Sabine and Sligo, La. crudes, and Miller county, Ark. S. La. Sour includes Choctaw, Darrow, N. Crowley, Roanoke and St. Martinsville. S. Ark. Sour includes Buchner, Magnolia and Village pools.

†N. La.-Ark. Sweet crude and S. La. Sour effective Aug. 30, 1939, except Cross Lake, La., Sept. 7, Baton Rouge-Univ., Sept. 11, and Bunkie and Eola, Oct. 23, 1939; and Ark. Sour, Sept. 13, 1939.

‡For Below 21°.

Effective Sept. 8, 1939, Gulf Refg. Co. met S. O. La's. N. La.-Ark. Sweet prices in Bull Bayou, Caddo, Crichton, De Soto, Haynesville, Homer, and El Dorado.

Posted by Arkansas Fuel Oil Corp.

Urania, La. (Jan. 28, 1937)	$1.02

Posted by Continental Oil Co.

(Oct. 11, 1938)

Tepetate and Ville Platte, La.	$1.03

(Jan. 1, 1939)

Abbeville, La.

Below 36	$0.92	38-38.9	$0.98
36-36.9	.94	39-39.9	1.00
37-37.9	.96	40 & above	1.02

Posted by Caddo Crude Oil Purchasing Corp.

(Aug. 14, 1939)

Allison area, Shreveport field	$0.95

Lisbon, N. La. (Sept. 14, 1939)

27-27.9	$0.66	32-32.9	$0.76
28-28.9	.68	33-33.9	.78
29-29.9	.70	34-34.9	.80
30-30.9	.72	35 & above	.82
31-31.9	.74		

Lisbon prices met by Gulf, Sept. 14.

Note: S. O. Louisiana prices in all La.-Ark. fields, effective Oct. 5, 1938, are on 100% tank table basis.

GULF COASTAL FIELDS

(a) (For effective dates, see footnote)

	Humble Sinclair Stanolind	Continental (Humble, Continental)	Refugio Crude Texas Co.	Shell
Below 20	$0.86	$0.91	$0.86	(b)$0.79
20-20.9	.88	.93	.88	.81
21-21.9	.90	.95	.90	.83
22-22.9	.92	.97	.92	.86
23-23.9	.94	.99	.94	.89
24-24.9	.96	1.01	.96	.92
25-25.9	.98	1.03	.98	.95
26-26.9	1.00	1.05	1.00	.98
27-27.9	1.02	1.07	1.02	1.00
28-28.9	1.04	1.09	1.04	1.02
29-29.9	1.06	1.11	1.06	1.04
30-30.9	1.08	1.13	1.08	1.06
31-31.9	1.10	1.15	1.10	1.08
32-32.9	1.12	1.17	1.12	1.10
33-33.9	1.14	1.19	1.14	1.12
34-34.9	1.16	1.21	1.16	1.14

(Continued in next column)

35-35.9	1.18	1.23	for oil 34° & above.	for oil 34° & above.
36-36.9	1.20	1.25		
37-37.9	1.22	1.27		
38-38.9	1.24	1.29		
39-39.9	1.26	1.31		
40 & above	1.28	1.33		

(a) Effective Oct. 2, 1939 by Continental, Humble and Texas Co.; Oct. 3, 1939 by Sinclair and Stanolind; Aug. 29, 1939 by Shell. Stanolind's lowest grade is below 21, at $0.88. Refugio, effective Oct. 2, '39 by Humble.

(b) Shell posts these prices in Iowa district, Black Bayou and White Castle, La.; prices in Iowa district have 2 lower grades: below 18, at $0.75, 18-18.9, $0.77; and 19-19.9, is $0.79.

Note: Humble's Gulf Coast prices apply in these Texas fields: Amelia, Clear Lake, Goose Creek, Mirando which includes Duval, Jim Hogg, Webb and Zapata counties and Heyser and Placedo fields; Mykawa, Sugarland, Thompsons and Webster.

Humble's prices in Refugio include crudes purchased in Saxet, East White Point, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

Stanolind's prices apply in High Island and Spindletop; also in Clinton, Hastings and South Houston, where, effective Jan. 1, 1940, lowest grade is below 21° at $0.88; rest of schedule same as other Gulf Coast. Magnolia posts Mirando, effective Oct. 2, same prices as Humble. Texas Co.'s prices are in Texas and La., Gulf Coast; its prices on Refugio are same as Humble's up to 28 gravity; 28 & above, $1.09; on Duval-Mirando same as Humble's up to 28; 28 & above, $1.04; it posts Golden Meadow, La., 24-30 grav., $0.90, plus 2c differential, to 40 & above, $1.10.

Posted by Shell Oil Co., Inc. (Aug. 29, 1939)

Gibson field, Terreborne Parish, La.	$1.04

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co.

(Effective Oct. 11, 1938)

Salt Creek, (except Tensleep crude), Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma-Kansas, ranging from $0.86 to $1.10, which see under Mid-Continent crude on previous page.

Tensleep, Salt Creek field	$0.646
Ites, heavy	0.92
Elk Basin, light	0.90
Grass Creek, light	0.90
Frannie light	0.55
Grass Creek, heavy	0.40
Hamilton Dome, Wyo.	0.35
Frannie heavy	0.42

Posted by Ohio Oil Co. (Oct. 11, 1938)

Elk Basin, Wyo.	$0.90	Rock Creek	1.00
Grass Creek, light	0.90	Lance Creek	0.77
Dry Creek, Mont.			0.92
Grass Creek, heavy (May 1, 1938)			$0.50
Sunburst, Mont. (Nov. 16, 1937)			$0.90

Posted by Continental Oil Co.

(Oct. 11, 1938)

Cat Creek, Mont.	$1.10
Big Muddy, Wyo.	0.98
Lance Creek, Wyo.	0.77

CALIFORNIA, *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 1, 1940

Gravity	Signal Hill (Long Beach) and others*	Seal Beach	Huntington Beach	Inglewood	Playa Del Rey	Olinda-Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier-East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Greeley Canal	Colea-Levee-Richfield-Western	Mountain View and others**	Elk Hills	Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria Val. (Union Oil, Sept. 1 '39)
14-14.9	$0.65	$0.64	$0.63	$0.64	$0.65	$0.61	....	$0.65	$0.61	$0.61	$0.62	$0.63	....	....	....	$0.60	$0.60	$0.60	$0.60	$0.60	....	$0.42
15-15.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	.60	....	.44
16-16.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	.60	....	.45
17-17.9	.65	.64	.63	.68	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	.60	....	.46
18-18.9	.65	.64	.68	.71	.65	.65	....	.68	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	.60	....	....
19-19.9	.69	.64	.67	.75	.70	.69	....	.72	.61	.65	.62	.63	....	....	....	.60	.64	.64	.64	.61	$0.60	....
20-20.9	.73	.64	.72	.79	.76	.74	....	.75	.65	.69	.62	.67	....	....	....	.60	.69	.69	.69	.62	.60	....
21-21.9	.78	.64	.76	.82	.81	.78	....	.79	.69	.73	.62	.72	$0.63	....	....	.64	.74	.74	.74	.66	.60	....
22-22.9	.82	.69	.81	.86	.86	.82	....	.82	.73	.77	.66	.76	.63	....	....	.68	.79	.79	.78	.70	.63	....
23-23.9	.86	.75	.85	.89	.92	.86	$0.71	.86	.78	.82	.71	.81	.67	....	....	.71	.84	.84	.82	.74	.67	....
24-24.9	.90	.80	.90	.93	.97	.90	.77	.89	.82	.86	.75	.85	.72	....	....	.75	.89	.89	.86	.78	.71	....
25-25.9	.95	.86	.94	.96	1.02	.95	.82	.93	.86	.90	.80	.89	.77	....	....	.79	.94	.94	.90	.82	.75	....
26-26.9	.99	.91	.99	1.00	1.08	.99	.88	.96	.90	.94	.84	.94	.82	....	....	.83	.99	.99	.95	....	....	....
27-27.9	1.03	.97	1.03	1.04	....	1.03	.94	1.00	.94	.98	.89	.98	.87	$0.83	$0.92	.87	1.04	1.04	.99	....	....	....
28-28.9	1.07	1.02	1.07	1.07	....	1.07	.99	1.03	.98	....	.93	1.02	.91	.86	.96	.91	1.09	1.09	1.03	....	....	....
29-29.9	1.10	1.07	1.11	1.10	....	1.10	1.04	1.06	1.02	....	.98	1.06	.96	.90	.99	.95	1.14	1.14	1.07	....	....	....
30-30.9	1.14	1.12	1.15	1.14	....	1.14	1.09	1.09	....	....	1.02	1.10	1.01	.94	1.02	.99	1.19	1.19	1.11	....	....	....
31-31.9	....	....	....	1.17		1.17	1.14	Elwood Terrace			1.07	1.14	1.05	.98	1.06	1.02	1.24	1.24				....
32-32.9	....	....	....	1.20		1.20	1.19	F. o. b. ship.			1.11	1.18	1.09	1.02	1.09	1.06	1.29	1.29	Kettleman Hills			....
33-33.9	....	....	....	....		....	1.24	....	$1.21	....	1.15	1.22	1.14	1.06	1.13	1.10	1.34	1.34	....	$1.12	....	....
34-34.9	....	....	....	....		....	1.29	....	1.25	....	1.20	1.26	1.19	1.10	1.16	1.14	....	....	....	1.17	....	....
35-35.9	....	....	....	....		....	1.34	....	1.29	....	1.24	....	1.23	1.14	1.20	....	....	....	....	1.21	....	....
36-36.9	....	....	....	....		....	1.39	....	1.33	....	1.28	....	1.27	1.18	1.23	....	....	....	....	1.25	....	....
37-37.9	....	....	....	....		....	1.44	....	1.37	....	1.33	....	1.31	1.22	1.26	....	....	....	....	1.29	....	....
38-38.9	....	....	....	....		....	1.49	....	....	....	1.37	....	1.36	1.25	1.30	....	....	....	....	1.33	....	....
39-39.9	....	....	....	....		....	1.54	....	....	....	1.42	....	....	1.29	1.34	....	....	....	....	1.38	....	....
40-40.9	....	....	....	....		....	1.59	....	....	....	1.46	....	....	1.33	1.37	....	....	....	....	....	....	....
41-41.9	....	....	....	....		....	....	....	....	....	1.50	....	....	1.37	1.40	....	....	....	....	....	....	....
42-42.9	....	....	....	....		....	....	....	....	....	1.54	....	....	1.41	1.44	....	....	....	....	....	....	....
43-43.9	....	....	....	....		....	....	....	....	....	1.59	....	....	1.45	1.47	....	....	....	....	....	....	....
44-44.9	....	....	....	....		....	....	....	....	....	1.63	....	....	1.49	1.51	....	....	....	....	....	....	....
45-45.9	....	....	....	....		....	....	....	....	....	1.67	....	....	1.53	1.54	....	....	....	....	....	....	....
46-46.9	....	....	....	....		....	....	....	....	....	1.71	....	....	1.57	1.57	....	....	....	....	....	....	....
47-47.9	....	....	....	....		....	....	....	....	....	....	....	....	1.61	....	....	....	....	....	....	....	....
48-48.9	....	....	....	....		....	....	....	....	....	....	....	....	1.64	....	....	....	....	....	....	....	....

FOB Standard Pipeline

*El Segundo prices same as Signal Hill. Wilmington prices same as Signal Hill, except below 19 gravity prices are: 14-16.9, $0.60; 17-17.9, $0.62; 18-18.9, $0.64.

**Includes Newhall, McKittrick, Kern River, Round Mountain and Kern Front, schedule for which ends with 19-19.9. Mountain View schedule begins with 19-19.9.

CLASSIFIED

Address all Blind Box Number ads to National Petroleum News, 530 Penton Building, Cleveland, Ohio, unless otherwise specified.

For Sale

800 gallon semi-streamlined tank, four two-hundred compartments, enclosed horizontal barrel carriers, side racks, hose tunnel, bucket box and hinged rear bumper; sacrifice price with or without 1936 Chevrolet truck. Write to F. E. Peck, 526 Fox St., Aurora, Illinois.

Oil Reclaiming Plant, 10 barrel capacity, complete unit for refining crank-case drainings. Box No. 707.

Jobbing business handling major products. Office, plant and station on highway and railroad. Wholesale farm trade and commercial accounts. Bear strict investigation, money maker, owner has other interests. Box No. 708.

25 Class III noncoiled tank cars, built 1920 equipped with side frames. Operating at present time clean service. Address inquiries Box No. 800.

A Prosperous lubricating oil jobbing and blending plant now making money. Will require about $5000. Business will pay out investment in two years. No indebtedness. Good reason for selling. Box No. 801.

FOR SALE

Bargain Prices—Shell Stills, Towers, Pressure Vessels, Coal Handling Equipment, Used and Surplus Equipment—Can be inspected our Coffeyville plant.

THE NATIONAL REFINING CO.
Coffeyville, Kansas

Wanted to Buy

Wanted Wholesale Gasoline Business selling between one and two thousand gallons monthly. Must handle major advertised product. State all particulars in full including source of supply and amount of controlled gallonage. Box No. 706.

1 — 3500-4000 gallon semi-trailer with or without tractor. Give weight, make and equipment and full information of trailer and tractor. C. and O. Oil Co., Bellows Falls, Vt.

Wanted one paraffin wax mold, must be in good condition. Give complete information first letter. Write Box No. 702.

JOBBER DEAL

Will lease or buy on terms good jobber deal. Prefer city of 10,000 or over with minimum 20,000 controlled gallons monthly. Give complete details. Box No. 709.

Position Wanted

EXECUTIVE ENGINEER

Are your distribution costs high? Executive, graduate engineer, 12 years major oil experience, specializing cutting operating costs marketing companies. Seeks change for valid reasons. Locate anywhere U.S.A. or Canada. Age 35. Married. Address Box 802.

Business Opportunities

Auto Service Stations

Splendid chance for executive with merchandising experience to purchase interest in established business. Communicate at once with Cincinnati Development Company, 535 Eggleston Avenue, Cincinnati, Ohio.

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CHEMICAL LABORATORY
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Equipped For All Known Tests & Research in Petroleum Products
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Telephone—Spalding 3578

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Design Construction Reports

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DETERMINATIONS
The Gray Industrial Laboratories
Chemists and Engineers
Specialists on Petroleum Products
961-976 Frelinghuysen Ave.
NEWARK, N. J.
Telephone Bigelow 3-4020

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Republic Oil Co.
Roper Corp., Geo. D.
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Wheeling Corrugating Co.
Witte Engine Works

·PERSONALS·

Claire Elizabeth Hoffman

Who is the blonde? Her name is Claire Elizabeth Hoffman and she is manager of Shell Oil Co.'s touring service. But, as she receives about 350 letters a day, it is unlikely that she'll answer requests for her phone number. But if you're after travel information, Miss Hoffman will oblige. A corps of trained assistants direct more than 50,000 motorists over the country's highways every year.

Miss Hoffman is the daughter of a service station operator, attended Mount St. Ursula Academy and Columbia University. She is interested in all sports, builds model boats, collects books for a "kaleidoscopic library" and can cook.

* * *

Frank G. Campbell, Newark, N. J., Sun Oil Co. salesman, and chairman of the Golf committee of the New Jersey Oil Trade Assn., won the annual golf championship of the Ironbound Manufacturers Assn. of Newark, relates **J. H. Gunn,** secretary of the oil trade association. With 100 players on the field, Mr. Campbell's score showed 40-42-82 for one of the state's most difficult courses.

* * *

After 16 years in the Mid-Continent, **Ira H. Cram,** division geologist, has been transferred to Chicago as assistant to the chief geologist of the Pure Oil Co.

* * *

R. H. McElroy, Chicago, assistant to Pure Oil Co.'s vice-president in charge of marketing, will complete 15 years of service Sept. 1.

It looks like **Harry J. Dolan,** Chicago, manager of the tank department of Socony-Vacuum's Chicago Division, will soon have his private caddy, as "Junior," Harry J. is now three months old, and getting bigger daily.

* * *

Many passable jokes have told about the expectant father, but to that harried soul it's more than a joking matter, according to **Bill Weston,** manager of NPN's New York news bureau. Bill spent a recent Sunday chewing his fingernails while the stork circled unconcernedly about and finally landed to deliver a 9¼ lb. boy.

* * *

E. H. Moore of Tulsa, Democratic national committeeman from Oklahoma and temporary chairman of the "Willkie Democratic Club of Oklahoma," was in New York City recently conferring with other Democrats on plans for a campaign to "place Republican Presidential Nominee Willkie in the White House next election."

At the same time Mr. Moore made arrangements for **John W. Hanes,** former assistant secretary of the treasury, to be keynote speaker at the organizational meeting of the Willkie Democratic Club of Oklahoma to be held at Oklahoma City about Aug. 25.

* * *

J. S. Bridwell, Wichita Falls, Texas, oil man, has been appointed to the board of the Texas Big Ben Park Assn. Mr. Bridwell is active in the American Petroleum Institute, Independent Petroleum Assn. of America, North Texas Oil & Gas Assn. and Producers Equity Assn. The board will map out and execute plans for the acquisition by the Texas State Parks Board of the Big Bend Park, sometimes called "Nature's show place in Texas."

* * *

F. E. McClaren, Los Angeles Seaside Oil Co.'s general sales manager, reports that his company will again publicize the Old Spanish Days Fiesta, Aug. 15-17, this year at Santa Barbara, colorful Pacific coast town. Posters of this fiesta have become collectors' items and the demand for them always exceeds the supply.

Another item from Mr. McClaren is the appointment of Milo Thomas, also of Seaside, as district sales manager of the newly-created Colton (Calif.) agency. Mr. Thomas has been assistant to the Los Angeles district sales manager and is thoroughly familiar with Southern California marketing operations.

After spending about 20 years in the "old South" **George B. Davies,** formerly with Grogan Oil Co., Shreveport, La., will go back "up north" to take charge of the Milwaukee, Wis., office of Spencer Petroleum Co., Chicago. Twenty years ago, Mr. Davies was associated with the men who now comprise Spencer Petroleum Co.

* * *

Because his off-hours were spent learning the department store business, **Arthur S. Hickok,** Toledo, president of Hickok Oil Corp., had little time to spend at the recreation field on the grounds of the Homer N. Kimball school at Madison, Ohio, where he went to school as a boy. The young people of Madison, however, will benefit from Mr. Hickok's recent gift of a flood lighting system for the field. Dedication of the field's new lighting system was a recent community event in Madison, with a program of events lasting from early afternoon until well into the evening.

Mr. Hickok comments that his early experiences learning the department store business in Madison, Geneva and Toledo, Ohio, have stood him in good stead in the past 27 years he has spent in the oil business. The oil business, he adds, is becoming more and more like the department store business, demanding merchandising along the lines employed by such stores.

Arthur S. Hickok